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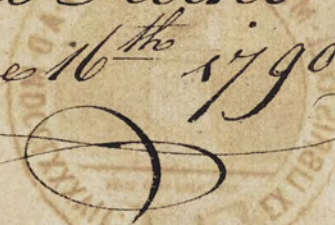
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Marcus Kuhl  
June 16<sup>th</sup> 1790

A faint, circular library stamp is visible behind the signature. The text within the stamp is partially legible and appears to read "UNIVERSITY OF MICHIGAN" around the perimeter, with "LIBRARY" at the bottom. The center of the stamp contains some less distinct text, possibly "ANN ARBOR".



Lecture

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Lectures

on the

Materia Medica

by

J. Kuhn. M.D.

Medicinae Theoriae Praxisque Professor







# Introductory Lecture.

Gentlemen.

No Study is more interesting to the mind, of Man, no knowledge more important than that of Medicine. Of all the goods of Life, health is the most desirable. It is the Soul which animates every Enjoyment. Without it beauty fades & Youth loses its Vigor; A man will starve at the best Tables when surrounded with the greatest delicacies. When deprived of it a Person becomes poor & wretched altho' possess'd of the greatest Wealth, even a slight degree of Disease renders Riches Tasteless & crowns themselves a Burthen. Painful Diseases level all Ranks; they make no difference between the Prince & the Beggar. a Fit of the Stone or the Cholic puts a King to the Test & places him upon an equality with the meanest of his Subjects. Since the Evils caused by disease are so great Man must early have been desirous of attaining health, guarding against



Sickness & restoring his injured frame to a vigorous State.

From hence we need not be surprized that Aesculapius who was considered as the Inventor of the healing art, had Statues erected to his Memory, was called the Son of Apollo; had Temples consecrated to him & was honored as a God.

But we cannot consider any Individual as the Founder of this Science. It is probable y<sup>t</sup> from a slender & imperceptible Beginning, by the successive Labors of ages it was brought at its present State of Perfection. It may be of Advantage to trace its Origin atleast as far as regards our present Subject.

It is not to be doubted but that in the first Ages of the world Man would be anxious to guard against Disease & endeavor to remove those with which he was attacked even at that early period. This laid the first foundation for the Materia Medica by which is meant that Branch of the Science of



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Medicine which treats of the Substances made  
use of in Diet & Medicine —

This Knowledge in those Days must have been very much confined; it has been brought to its present State of Perfection & almost all Medicines discovered either by Accident, Instinct or promiscuous Experiment. —

By Accident we mean the Discovery of Medicines undesignedly made; like what we are told by the celebrated Mr Geofroy of the Peruvian bark viz. that a Number of the Trees being blown into an adjacent Lake gave such a bitter Tincture to the Water that neither the People nor the cattle could use it, untill at length an Indian urged by severe Thirst in an Intermittent Fever eagerly took two or three large draughts which cured his Disorder & gave such a Repute to the Waters that they were soon exhausted & when the Lake filled by the next Rains & was found without its Bitterness & Virtues it was justly concluded that they both arose from the macerated Trees which had formerly



4 been blown into it. Thus to more accident the World owes the Discovery of one of its most sovereign Remedies & probably had it not been for this Accident we should never have been made acquainted with its Virtues.

By Instinct we mean that Discretion which in different degrees is diffused thro' all animals directing them to chuse what is good & avoid whatever is evil or destructive to them. This faculty is possessed by Man in a superior Degree, thus we find that Children & Chlorotic Girls whose Stomachs abound with an Acid swallow greedily Chalk Ashes & other things which will neutralize & correct this Acidity. Persons labouring under putrid Disorders have a great Aversion from & cannot bear the Sight of Flesh & eagerly desire Acids & other Substances which have a Tendency to remove the complaint. —

By promiscuous Experiment we intend Remedies found by hasty & indiscriminate trials not pointed out by Reason nor Instinct. In



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this way many valuable Remedies have been discovered.

Medicine like all the other Arts & Sciences was much improved by the Greeks. They had a Custom of exposing their Sick in the Market places & Highways for the Inspection of Passengers who recommended what they had known to succeed in similar Cases. If the sick man recovered it was considered as an indispensable Duty to hang up a Potive Tablet in the Temple of Apollo or Esculapius the Patrons & Gods of Physick. On this Tablet was written the History of the Disorder under which they had labored & the Remedies by which it had been removed. The Remedies were by those means increased beyond all conception & their various combinations became boundless from the Accumulation of Ingredients. This practice was certainly productive of great Disadvantages as in crowded Compositions there must frequently be a discord between the Ingredients & from its accumulation the Virtues of the most powerful Ingredients were obstructed by the Number of



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inert Substances with which they were combined  
This was carried to an Excess in the Composi-  
tion of Antidotes which when taken into the  
body were to prevent the Effects of any future  
poison. To this we owe those enormous com-  
positions the Theriaca & Mithridate Com-  
positions which have destroyed more lives  
than the Sword of an Alexander or a Caesar.

They entirely banished all Esteem for Simpli-  
city & effectually checked the Progress & pre-  
vented the Improvement of the Science.  
All their Emulation was in Dexterity to  
enlarge these Superfluities first by the Gre-  
cians & afterwards by the Arabians.

When Learning was introduced by the Arabs  
into the West of Europe the most profound  
Superstition reigned Under this baseness  
of Spirit no improvement was to be expected  
The only method by which Men of Genius  
could display their Talents was in commenting  
upon the Philosophical Systems of the



Antients which were invented to throw light upon  
Subjects they did not at all understand & thus  
they employed themselves for several Centuries.  
The Introduction of Chemistry instead of dimi-  
nishing increased the Evil. To this we owe  
the Elixirs & other ridiculous & trifling Com-  
positions.

Physicians were at this time divided into two  
Sects viz. the Chemical & Galenical between  
which there were continual Controversies &  
the same blind Submission was still paid  
to the Authority of Masters whom they had  
imposed upon themselves.

When Learning again began to shine forth  
in the fifteenth Century from the Darkness  
in which it had been long involved Physicians  
became anxious to acquaint themselves with  
the knowledge of the Antients. They therefore  
collected the History of Simples from the wri-  
tings of Dioscorides & Theophrastus. But here  
they met with unexpected Difficulties. & that  
from the imperfect Descriptions left by the:



Antients it is in many Cases absolutely impossible to ascertain the Substances they made use of & they were not sufficiently acquainted with Natural History to know that the Plants of Greece differ exceedingly from those of the Western parts of Europe. These Circumstances served as a Boon of Contentment for some time, many virtues were ascribed to plants without the smallest Shadow of Reason. —

The erroneous & Superstitious Opinion that Planets have an Influence upon plants proved the Cause of introducing insignificant & ridiculous Substances into the Materia Medica & almost all the efficacious ones were at the same time banished. All the Writings on the Materia Medica were Compilations from the Antients much Distance therefore should not be paid to them. Their Ignorance appeared in nothing more evident than in their crowded Compositions. Lord Bacon justly calls a great Ca-



riety of Medicines the Offspring of Ignorance.  
Not fewer Errors have crept into the Natura  
Medica from false Theories than, if I may be  
allowed the expression from false ~~fact~~ facts.  
Look into practical books & you will find g<sup>d</sup>  
virtues attributed to Substances entirely or  
nearly inert. An Instance or two will tend to  
elucidate this. E. G. What great qualities has  
Sour attributed to crude Mercury & how has  
Boerhaave extolled the Virtues of Radix gra-  
minis Substances which we now know poss<sup>ess</sup>  
very little if any Virtue at all. To avoid these  
Errors I shall divide my Subject under the  
four following heads. Viz.

1. The knowledge of the Substances employed in  
Diet or Medicine & their Distinction from all others
2. Their Virtues in Diet or Medicine.
3. The foundation of these Virtues in their sensible  
Qualities or Chemical Properties.
4. Their Pharmaceutical Treatment or their ar-  
tificial preparation for the purposes they are



intended to answer with the Compositions into which they enter & the propriety of <sup>the</sup> combination together with the Dose in which it is to be given in order to produce its intended Effect.

As to the first the Substances are either natural or artificial: The knowledge of the former must be obtained from Natural Hist<sup>y</sup> & of the latter from Chemistry. A knowledge of Natural History is certainly of great use to the Physician. Had the Antients been acquainted with it they would not have been engaged in so many Disputes as they were. The second head as it is by much the most essential so it will by far obtain the greatest part of our attention in the following course.

Under this head we will 1<sup>st</sup> endeavor to ascertain the general Virtues of the Substances & the Indications they are fitted to answer.  
2<sup>d</sup> We shall mention the Diseases they are employed to cure the Circumstances which point out their use & the Cases in which



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They are contraindicated. 3<sup>d</sup> Their manner  
of Operation & the Doses in which they are to  
be administered. Under this head we shall  
describe the particular Diseases in which  
they are to be taken, distinguish them by  
characteristic Symptoms from all others &  
point out the Indication & the general prin-  
ciples upon which a cure is to be attempted.  
As to the third head we shall examine the foun-  
dation of their Virtues in their sensible Quali-  
ties & chemical Properties. This is the only  
Method I know to form a proper Judge-  
ment of the Virtues of medicines. By these  
means we may be enabled to discover the  
Virtues of some Substances that would other-  
wise be hid from us. Thus before the Time  
of Sir John Pringle many Substances were  
supposed antiseptic which he, by his expe-  
riments proved septic - thus calcareous &  
absorbent Earths were formerly used in the  
Dysentery upon a Supposition of their being



antiseptic, nay they are even prescribed to <sup>day</sup> in this Disorder tho' they can be of no advantage & by increasing the Putrefaction may become prejudicial. —

Under the fourth head we shall consider their pharmaceutical Treatment & the Compositions into which they enter with the propriety of their Combinations.

From hence you see that this Science is of the utmost Importance to a Physician. It is the only Criterion to judge between a regularly bred Physician & an illiterate Quack. The Quack sometimes cures disorders by his Medicines but he is not acquainted with the manner of their Operation nor the Reason why they are indicated. He who gives a medicine the operation of which he does not understand nor does not enquire into the Qualities on which its Virtues depend, is at best but an ignorant pretender to Physick. Van Swieten says it is scandalous for an antient to be ignorant of the Tools with which he



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operates & the same may be said of a Physician who is not versed in the Materia Medica. he will be exposed to ridicule from his absurd Compositions.

The Gentlemen who practise the healing art in this Country have another Incentive to animate them to pursue this knowledge. We have reason to believe that Nature has supplied every country with Remedies for the Diseases that are peculiar to it. It would be denying the Goodness of the Supreme Being to doubt of this had we not sufficient Reasons otherwise to convince us of the Truth of it. A few Instances will place the matter beyond all Possibility of Doubt. The Goodness of the Deity appears in nothing more remarkable than in having provided Antidotes for the bites of venomous animals. Thus in India where the Naja is the most venomous Serpent the Natives have not only an Antidote in the Radix Ophiorrhiza but also the Ichneumon or Mungos which attacks it wherever he finds it



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If bitten by the Serpent he has immediate Re-  
course to the Ophiorhiza which the Natives  
also use when bitten & always with Success  
when applied in time. In this Country  
where the Rattle Snake is the most veno-  
mous animal we have many powerful  
Antidotes amongst which is the Seneca  
Snake Root. The Lus Venera was not  
known in Europe before the Discovery of A-  
merica & it is generally allowed to be en-  
demical to the Natives of this Continent &  
they have a means of curing it speedily without  
the use of Mercury. They employ the Lobe-  
lia & Ceanothus. Not many years ago a  
Root was discovered in the Southern parts  
of this Continent which is said to be superior  
to the Bark in some things & inferior to it  
in nothing & is peculiarly adapted for the  
putrid Disorders which are prevalent in  
those parts. —

Let us reflect that the Salap. Per-



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caciana the Peruvian Bark & all the  
rich Balsams are the productions of America & it is not probable that indulgent Na-  
ture has confined all her valuable Produc-  
tions to one part of this Continent. We know  
that the Indians of N. A. cure many Diseases  
to which they are obnoxious by simple Rem-  
edies as effectually as if they were acquainted  
with the most costly & artificial ones & they  
are perhaps happy in their Ignorance of those  
Substances. It is our Duty to inquire into the  
Remedies by which these cures are performed.  
To animate us in our Enquiries we may ob-  
serve that new Remedies are daily discovered  
Within these few years there have been added  
to the Stock of the Materia Medica the  
Radix Quassia the Columbo-Root the bu-  
brum Ammoniacum & very lately the  
Flowers of Zinc, Medicines of the utmost  
utility in the Cure of many Diseases inci-  
dent to the human Frame. —



There is no doubt but that N. A. contains many capital Remedies. The knowledge of the Virtues of Remedies is to be obtained only from the Natives of the Country in which they are produced which are afterwards to be established by repeated Observations. This has been the practice in every Country & it is our own fault if we do not employ it here. There is no doubt but in this Way many valuable Remedies for the Preservation of health & the Cure of Diseases maybe discovered & it is our duty at least to attempt it & perhaps it maybe the good fortune of some one of us to discover a Medicine equally efficacious w<sup>th</sup> the Peruvian Bark in the cure of diseases. Any person who should make such a Discovery would do more service than the founder of Hospitals & would be entitled to more eminent Distinction as a Benefactor to Mankind. —



# Lect: 1<sup>st</sup>

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A commendable Curiosity has at all Times excited Persons to make themselves acquainted with the Origin, Rise & Progress of the Science in which they intend to become Proficients. No Science deserves more Attention in this Way than that of Medicine; for it has always happened that Physicians have given Laws to their fellow Men and that great Names have stamped a Value upon Opinions which they by no Means deserved. In giving an Account of the several Persons who have been eminent in this Science we at the same time acquire a Knowledge of their Theories; What therefore in other Sciences is a Matter of mere Curiosity is here of the utmost Utility. To make you acquainted with the Theories which have prevailed in Physick is my Motive for devoting this Lecture to the History of it.

Some useful Arts have their Origin & Invention placed beyond the Reach even of Tradition; some have crept into Existence without an Inventor; some at the dressing of Food & that of Clothing which at the Beginning required some Art must have been coeval with Man. But the busy Minds used to a Beginning in everything rests not till it finds, or imagines it finds some



some Persons to whom it may ascribe the Invention of each Art; Thus we know that Baachus is said to have invented the Art of making Wine. The Bow and Arrow is said to owe its Origin to Scythus a Son of Jupiter tho' it is a Weapon used in every Country. Even Spinning on Account of its great Utility has had its Origin ascribed to several remarkable Persons thus the Egyptians ascribed it to their Goddess Isis - the Greeks to Minerva the Peruvians to Cella & the Chinese to Yaids.

I give you these Instances to show how similar Opinions are in uncultivated Countries and how little Tradition is to be relied on. Medicine has likewise been attributed to Divine Origin and with equal Reason.

It is not at all probable that one Person should have made such Progress in Physic as to deserve the Name of an Inventor of it. It is by the successive Labors of Persons that Arts are produced. We will rather suppose that Medicine is in one Respect coeval with Man. Ever since Mankind have been in the state in which we now find them they must have been subject to various Diseases & liable to pain and Sickness occasioned by the Inclemency of the Air, Excess of Diet &c.<sup>d</sup> though in a much less Degree than we are now on Account of their Simplicity of Life. But they must



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must always have been more particularly liable to external Injuries which would require manual Aid. A Cure would be attempted. Many Things would perhaps be tried at Random. In many Diseases there is a natural Instinct for many Things that give Relief. Some Diseases would be cured by Nature. People would observe all these & apply them in similar Cases; hence the Origin of Physick.

The Babylonians and other Nations exposed their Sick in the Highways to the Passengers who were requested to examine their State by which they could know whether they had ever seen Persons in the like Condition & discovered those Remedies that they had known to be of Use in like Cases. Many of those that recovered hung up Tablets in the Temples of Aesculapius specifying the Diseases they had laboured under & by what Means they had recovered. Long Life & a large Family would render a Man capable of Improving in the Knowledge of Physick. Fame Humanity and grateful Reticence might contribute in encouraging a Man to make more accurate Observations in Order to be more beneficial to his Neighbors. The same Motives might excite him to transmit his Knowledge to Posterity, as indeed we know to have been the Case & Medicine to have been confined for length of years to certain Families.



20 But still the natural Physick, if I may be allowed the Expression, made no great progress until it was cultivated as a regular Science & carried from one Hall into another - thus Greece received it from Egypt, Rome again from Greece.

The most ancient regular accounts of Medicine we have from Egypt - these are obscure & defective. We have an obscure account of Hermes Trismegistus who is reckoned the father of Medicine, & Philosophy of Egypt. He laid down several Rules which his Superiors in Medicine were obliged to follow under pain of Death. He enjoined that one Person should not presume to prescribe in different Disorders but confine himself to one on pain of being put to Death in case the Patient died. These Regulations were calculated to prevent Mischief but they were a great Restriction on Science. They might indeed answer in manual Operations where great Accuracy is required but not at all in internal Diseases as it would lead to the highest Degree of Empiricism & yet Analogy is sometimes necessary even



in Empiricism.

From Egypt the Arts & Sciences passed into Greece. Here the Priests of Esculapius were chiefly intrusted with the Sick who were usually brought to the Temples to consult the Deity.

And it was thought the Priests had the cures revealed to them in dreams from which we must conclude that a great deal of Priestcraft was connected with it. But some of the Priests soon became Clinical Physicians but the exact time is difficult to ascertain. They seem to have been particularly attentive to prognosis. All the writings & records of Physic were kept in the temples & these were at the same time the Schools of Physic some of which became very famous as Rhodes, Cnidus, Cos, Crotona &c.

This was the State of Physic untill the time of Hippocrates who was the seventeenth in lineal Descent from Esculapius. He flourished 458 Years before Christ & died at 104 years of age.



one Year before the birth of Alexander the Great  
 & 200 years after Sciences began to flourish in  
 Greece and when Socrates & his disciples had bro't  
 the Sciences to their highest pitch in y<sup>e</sup> Country.  
 He was born & bred in Thessaly remote from  
 Athens at that time the Seat of Literature and  
 where a moderate share of Abilities, would secure  
 to him great Fame; which, if no Material Revo-  
 lution happened, might by his Disciples & concur-  
 ring Circumstances be raised to such a height  
 as to make succeeding Ages look on him as a  
 Prodigy. If the writings imputed to him are all  
 taken together they appear absurd & ridiculous  
 but select them we find Observations made  
 with Accuracy & Sagacity. From hence we are  
 led to imagine that many of the writings which  
 go under his Name are not really his but the  
 production of some inferior Personages who  
 to make them better received published them  
 under his Name.

His Fame would have been of short dura-  
 tion had not Galan been at Paris to explain  
 many of his obscure passages. and to hold him



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up as a Prodigy. He was the Author of the Dogmatists. His Doctrine was followed until Philonius of Cos & Serapion founded the Empiric Sect who rejecting all Reasoning were for trusting solely to observation History & Analogy in the Cure of Diseases.

We may observe that these Empirics were very different from the Empirics of our Days who only hide their Dullness Craft & Laziness under the specious Name of Empiricism. It certainly requires as much time to study Empiricism properly as to become a Dogmatist.

From Greece the Arts & Sciences with Physic in their Train proceeded to Rome. We shall consider in few Words the Rise & Progress of Physic in Rome.

It is well known that those Men who founded the City of Rome were a Set of Barbarians and Robbers & at the Beginning were engaged in continual Wars with their Neighbours, neglecting all Sciences: Nor could it be expected that Arts and Sciences would thrive in such a State. Pliny tells us that Physic was not practised in Rome for 600 Years after its Foundation & at this time we find Cato the Censor prescribing Incantation for the Cure of a fractured Leg. But some time before



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This the Asculapian Superstition had been introduced by the Priests who had Temples near the Tiber as appears by some Medals handed down to us. Archagathus came to Rome 533 years after the building of the City. He was a great Surgeon and was at first received with Favour but lost it soon & was banished with all the other Greek Physicians according to the Acco<sup>4</sup> of some. This perhaps was owing to the manual Operations to which all uncivilized nations have a great Antipathy.

Asclepiades was the first Greek Physician who came to Rome after Archagathus. He professed to cure, cito, tuto et quundo. He was very compliant denying the Patients - nothing that they desired - he took care not to increase the Disorder by overloading the Patient with Physic. He succeeded surprizingly by his specious Manners, Boasting & easy Physic - and no Wonder for we find them succeed even at this Day - He was the Author of the Methodic Sect.

These different Sects were swallowed up



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upon the Appearance of Galen who we must allow to have been a Person of great Merit, but his Fame was owing rather to a Train of Accidents than peculiar Worth. Nico the Father of Galen was a Man of Wealth & Literature & <sup>gave</sup> ~~gave~~ him an Education formed on a general Plan: After the Study of Philo-  
sophy he commenced that of Physic which he pro-  
secuted under several Masters, by which he had the Advantage of learning different Opinions — to all this he joined Travelling: He was peculiarly solicitous to encrease the Materia Medica and was very curious in anatomical Researches. Thus possessed of all the learning requisite to make a Physician he repaired to Rome the Capital of the World, where he found many Phy-  
sicians all engaged in acquiring Practice by the usual Means, extolling themselves & decrying their Rivals. It was his Fate not to succeed, there-  
fore after staying four or five years he returned to his native Country, Pergamus. He had however gained the Favor of some Men of Science & recommended him-  
self to the Patronage of some of the highest Clafs — He was afterwards recalled by Marcus Antonius



and Lucius Verus where he acquired the greatest Esteem of the Emperor & what was of greater consequence the Empress Faustina. He was of the Sect of Dogmatists and established their Principles by his great Reputation high Rank and great Authority by which he suppressed all the other Sects. He wrote 500 Volumes which he so connected as to form a compleat System of Medicine.

In this Interval the Roman Empire in the West was over-run & intirely ruined by the Goths & the Barbarians of the North & all the Arts & Sciences or rather their Remains fled into the East where they continued some time.

In the seventeenth Century of the Christian Era Mahomet arose & over-run great part of the East, took & destroyed Alexandria & as the Saracens or Mahometans were equally Enemies to Literature with the Goths they destroyed the Library at Alexandria, which at that time contained almost all the Learning of the East.

The Arabs neglected all learning untill the reign of the Caliphs of the Race of Abasides when Learning began again to be encouraged & by whose means the Greek Authors were



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translated into the Syrian & Arabian Languages.  
The first Books they got were Aristotles & Galen's.  
They were for vile Imitators of Galen & did nothing  
but comment upon his works. They neglected Ana-  
tomy from an Aversion to touch dead bodies en-  
joined upon them by their Religion & which is pecu-  
liar to all the Eastern Nations. They contributed  
little or nothing to the improvement of Medicine  
except by adding such new diseases as were pecu-  
liar to their Country with the Remedies useful  
in them, as the Small Pox, which was first  
written upon by Rhazes in the tenth Century  
& was not known in Europe untill the Insti-  
tution for the Cruisades for the Recovery of the  
Holy Land. With several Diseases they added  
the Symps to the Materia Medica for before  
this Time Honey was used for them. They  
made some improvements in Surgery which  
must always happen in manual Exercises.  
The Arabians brought Learning again into  
Europe; first into Spain where they established  
Schools from whence Literature was spread  
all over Europe. This was at the end of the  
eleventh & at the beginning of the 12<sup>th</sup> Centuries



At this time Universities began to be founded of which that at Salerno was the first. Medicine was here taught upon the Galenical Plan: And here the Schola Salernitana was published by which we may judge of the State of Learning at that time.

In the Beginning of the fifteenth Century Science began to shine forth in its Native Lustre. In 1453 Constantinople was taken by the Turks which occasioned all the Men of Learning to come to the West who brought with them all the valuable Manuscripts & Learning of the Antients Erected Schools. In 1466 the art of printing was discovered by which the works of the Antients were made public & thus the Increase of Learning & Advancement of the Sciences were much promoted. Men soon discovered the Superiority of the Antients & applied to their Works.

Chemistry was till then little employed in Physick. It was entirely in the hands of Alchemists & Quacks who made some trifling Improvements. The Lucas Venerus about this Time first made



its appearance which was to be conquered by Mercury only - Antimony had not long been known. The Arts & Sciences now made a great progress.

Medicine however did not increase so fast as the potter arts. The Doctrines of Galen continued to be followed untill Paracelsus appeared on the Stage. He was the author of the Chemical Sect. his Doctrines lasted about 100 years. The most considerable of his followers was John Baptista Van Helmont who was a person of great learning but a wrong headed Enthusiast. To him belongs the Merit of having exploded the Doctrines of Galen but he unhappily substituted his own worse ones in their Stead. He rejected Bloodletting & prescribed the Hot Regimen in Fevers & at length fell a Sacrifice to his own Theory. He died in the 46<sup>th</sup> Year of his Age of a pleurisy because he would not submit to be bled in it.

The Scholastic Philosophy at this Time still prevailed altho the great Bacon flourished who taught that the true Method of improving Philosophy was by Observation.

The Discovery of the Circulation of the blood



30 by Doctor Harvey & of the Lymphatic System  
& Thoracic Duct by Dr Hunter for some time  
produced no great Alteration or Improve-  
ment in Medicine

Francis De la Boe Sylvius professor at Leyden  
was a man of an active Genius & extensive  
Learning. He was well acquainted with Anato-  
my, Materia Medica & Chemistry. In Syl-  
vius we have an Instance of the Insuffici-  
ency & Fallacy of human Reasoning for not-  
withstanding all his knowledge he fell into  
a wrong Theory. He supposed the Cause of  
Fever to be an Acid & of consequence gave  
Alkalies to cure it. No theory that ever existed  
was so productive of Mischief to Mankind  
as it spread universally. If any who were trea-  
ted in this manner escaped they may justly  
be said to have passed thro' a fiery Trial.  
Sylvius prescribed Opium very freely &  
is said to have died from too great a use of it.  
Sydenham was inferior to Sylvius in E-  
ducation but far superior to him in judge-  
ment & a peculiar Talent for Observation.



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He appears to have been one of the greatest Practitioners that ever lived. He had not much Knowledge of Books but was well acquainted with the writings of Hippocrates and was not a servile Imitator even of him. He is a perfect Model of Integrity & Candor. He is erroneously said to have no Theory but this is not the Case for no practice can exist without Theory. He was indeed not addicted to Theory and it is probable never entertained a Theory after he had Reason to doubt of its Truth. He gave Opiats fully but judiciously & first introduced the Simple Practice. He was more esteemed by Foreigners than by his Country Men who called him a Quack. He first observed that the same Disease in different Circumstances required very different Methods of Treatment.

The Mechanical Physicians arose about this Time, who considered the Body as a mere Hydraulic Machine, never regarding the Mind or Sensitive Principle but were for demonstrating every Phenomenon on Mathematical Principles, thus forming very strange Theories with Regard to the Cure of Diseases. They were superseded by Hoffman, Stahl & Boerhave each of whom formed a System which has numerous Followers even to this Day.

Hoffman was an Admirer of the Mechanical System & was well versed in Chemistry. He was



a plain, good-natured honest, candid Man. He is often tedious & first took Notice of the Sentient Principle. He and Stahl were Contemporaries & Rivals and for a long time divided all Germany between them. Hoffman was rather credulous and too fond of his Nostrums, the preparation of which he kept a Secret & which he extolls greatly and attributes great and cardinal Virtues to them.

Stahl was first raised by Hoffman but soon became the Rival of his Patron. He was a Man of an acute & penetrating Genius. From some hints thrown out by Plato, Dolaeus Wepfer & others he supposed the Rational Soul to preside over the System. He ascribed the greater part of Diseases to a Plethora and attributed all Crises & the like Efforts of Nature to a Rational Soul. From his Notion of Plethora he made great Use of Aloetics to promote Hemorrhoidal Discharge & thereby to diminish that Plethora. He may be consulted to Advantage in Diseases arising from obstructed Menses in Hemorrhages & in other Disorders which are owing to Plethora. He was the Head of a numerous Sect



in Germany. His followers were particularly accurate in giving the History of Diseases. He first attended to the Nervous System. —

Boerhaave lived about the same time. Every Branch of Medicine is much indebted to him. He was a Man of incredible Application & solid Genius. He was very eloquent & by that means recommended his Doctrines much to his Pupils. He was attached to no Sect but took what he thought proper from them all & others formed a complete System. He took the Doctrine of Lintor & Obstruction from Bellini & the Mechanical Physicians; of Acids & Alkalies from Chemists & of Plethora from Galen. He however entirely neglected the Nervous System. For this some of his disciples have made amends particularly Haller who has very particularly considered the Laws of the Nervous System.

The present System is now complete as it takes in all the parts, tho' by no means perfect. Altho' Anatomy, Botany & Chemistry seems to have risen nearly to their highest degree of Perfection Medicine appears at present to



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be in a low state.

From this Sketch of the History of Medicine we may learn many important Lessons. We may observe that Systems are of infinite prejudice. They are a refuge for Idleness & are a kind of Common-place-book to which the Indolent may have Recourse on all Occasions.

Within these 30 years Medicine has made no Improvement except in the Island of Great Britain. There as no man ever arose to such a height as to dictate to his Countrymen. Medicine has been more improved than anywhere else tho' 50 Years ago Britons were inferior in Medical Knowledge to their Neighbours.

We also learn the Mischiefs arising from Theory & false Speculation & that Theories ought never to be admitted but when founded on Facts.

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## Lect. 2<sup>nd</sup>

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The variety of Sentiments which prevail on the Animal Economy render it necessary for me to give you my Opinion on this Head as it will tend to assist us in accounting for the Operations of Medicine & will enable you to understand me the better hereafter. These Opinions will probably appear new to many of you on Account of their being so different from the Sentiments of the Generality of Writers. I could not wish to influence your Opinions in Preference to your Judgment and I shall endeavour to give you nothing but what appears to me to be both true & of Service in the Practice of Physic.

The most ancient Opinion is that of the Rational Soul presiding over & directing the Animal Function. This Notion was held by Plato, Hellmont, Dollaeus, Weffer & particularly by Stahl. This last as I have already observed was the Rival of Hoffman. He received this Opinion & ushered it into the World with all the advantages arising from extensive Learning & great Genius. He had numerous Followers in Germany & other parts of Europe. In many Places in Germany his Doctrine is still received. Dr. Nichols of London & Doctor Porterfield of Edinburgh are the



only Persons in Britain who have embraced his Opinion.

Stahl & his Followers from their Notion of the Action of the Soul in General that they might not disturb her in her Operations, employed but weak & trifling Medecines & this will always be the Case with those who trust too much to the Operations of Nature.

Another Opinion is that of Borelli, Bellini Pitcairn & others who considered the Body as a mere Hydraulic Machine & attempted to account for the Operation of Medicines entirely upon Mathematical Principles, the Size Figure &c. of the Particles. They intirely neglected their Nervous System which in my Opinion is most to be regarded in accounting for the Operation of Medicine.

The Body consists of three parts viz<sup>t</sup> the Simple Fibre, the Moving Fibre or Solida viva & the Fluids. By the Solida Viva or Moving Fibres we mean all those parts endued with Sensibility & Irritability. Of these Properties the Nervous Power & Resorium commune are the Foundation. The Extent of the Nervous Power over the System is very considerable. It is found



in the Muscles of voluntary Motion & wherever Muscular Fibres are found, in the Alimentary Canal, in the Bronchia & Lungs in the Heart & Arteries in the Glands & Excretories & in the whole Lymphatic & Absorbent System, The simple Fibres & Fluids have neither Sensibility nor Instability.

Much Stress is commonly laid upon the Laxity & Rigidity of the Simple Fibres & Medicines are generally prescribed to produce a Change in them. This is not entirely to be disregarded. They seem however to increase uniformly in Firmness as the Person advances in Age & I can have no Idea of any Disease in old People from this Laxity nor in Children from Rigidity. I believe it is little in our Power to produce any Change in them - if there is any it is from Alterations made on the Moving Fibres & must be made very gradually - Exerc<sup>r</sup>ise & Diet will do more than all the Medicines we can apply.

Since the Discovery of the Circulation of the Blood, Physicians have applied themselves to the Hydraulic Mechanical System & have fallen into many Absurdities. They have in general considered the Secreted Fluids <sup>as a criterion by which</sup> ~~in general, whereas~~



to judge of the state of the Fluids in General where, as the Appearances of the different Secretions, should in general be ascribed to the State of the Secretory Organs. The Augmentation, Diminution and Acrimony of the Secretions have been ascribed to the different State of the Fluids, Urine has in almost all Ages been considered as a Criterion of the State of the Blood: I shall here give you an Instance to show what Absurdities even great Men will be guilty of when they suffer themselves to be led away by wrong Theories. ~~Huxham~~ speaking of pale & limpid Urine with a Scum as a bad Symptom in Fevers foreboding Delirium supposes it to be owing to a separation of the red Globules and Coagulable Lymph from the Serum & advises Acids and Saponaceous Drinks to be employed to unite more intimately the separated Portions. Acids are proper to moderate Heat & allay the Thirst, but on a very different Principle from what Huxham supposes. This Separation it is certain could not possibly happen while Life remains. I have ascribed this Appearance to a Spasmodic affection of the Kidneys we find that Acids are indeed proper - and we find why it is a fatal Symptom



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from the Spasm affecting the external & internal  
Parts of the Body.

Most Diseases have been ascribed to the different  
State of the Blood, its Acrimony, Densities &c. but in  
my Opinion, these Considerations may in general be  
intirely disregarded. The State of the Fluids depends  
intirely upon the State of Solids. Thus in a strong  
& rigid Habit of Body we find a rich Dense Blood -  
in a weak, relaxed Habit we find the Blood thin &  
watery.

Physicians have commonly directed Medicines  
to be given to obviate the different Kinds of Acrimony  
agreed upon, the Putrid which occurs in the Scurvy.  
In the Cure however we can do nothing with Me-  
dicine without a Vegetable Diet and if that can  
be procured no further Medicine is necessary.  
Medicines taken into the Stomach can have no  
considerable Effect in changing the State of the  
Fluids as they there suffer the power of Digestion,  
are converted into Chyle and have their Virtues  
changed by being rendered mild & inert. I except  
Saline Substances which are taken up into the  
Blood unaltered. They are however only suspended  
in the Serum & pass off quickly by Urine & can never  
change the Fluids: If we give a large quantity of them  
they will prove purgative & none will then be taken  
up



up. This is likewise the Case with all those Acrimonious Medicines which would have a change of producing an Alteration in the State of the Fluids. As the Simple Fibres & Fluids are not acted upon by Medicines they must of consequence exert their Effects solely on the Solida Viva or Moving Fibres which are endued with Sensibility & Irritability which depend on the Nervous Power, Brain and Sensorium commune or Sentient principle.

The Nervous System has a very general Consent over the whole System & thus Pain & Pleasure are communicated from one part to another. Thus a locked Jaw is not commonly from a Puncture or Hurt of a Nerve in the Extremities. It is produced by this Consent of one part with another. But tho' this Consent is general yet some particular parts are more liable to be affected than others. I do not pretend to give you all the different Consents for that would be impossible. I only at present speak of one - that of the Stomach which is more particularly to be regarded in accounting for the Operation of Medicines.

Nothing has more considerable Effects on



The Mind than a disordered State of the Stomach and the Stomach is likewise much affected by the State of the Mind. Thus we see Hypochondriac Persons whose Disease, <sup>which</sup> is commonly chiefly situated in the Stomach produces grievous Effects on the Mind or Sensorium Commune or the seat of it, the Head In Wounds of the Head voracious Vomiting of Bile proceeds from a Consent between the Stomach & the Liver. The Stomach has a considerable Consent with the Heart & Lungs independent of the Vicinity of those Parts. The Palpitation of the Heart in Hysterie & Hypochondriac Cases is owing to this Consent and nothing will sooner relieve it than a small quantity of Brandy, Wine, Rum or any other Cordial that will remove the Irritability of the Stomach. I have known the Pulse to beat 140 Strokes in a Minute where the Gout has passed from the Extremities to the Stomach but upon taken any Stimulant as Brandy Wine &c. which would send the Gout back to the Extremities the Pulse would return to its usual State.

Nothing is more common than Indigestion & Acidity producing a Fit of the Asthma



in Persons subject to that Disorder & when the Disorder is removed in the Stomach the Person is likewise freed from the Asthma for a Time. There subsists also a considerable Consent between the Stomach & the Extremities Thus Persons subject to the Gout often experience sudden Transitions of it from the Extremities to the Stomach & vice versa.

This Disorder never gets into the Stomach when it is in a proper State and only affects it when relaxed. The Stomach is connected with the Surface of the Body & with the small Vessels over the whole Frame. This is evident from various Considerations. No sooner do some Aliments reach the Stomach of Particular persons than Spots & Efflorescences are produced in the Skin. Van Swieten has an Instance of a Person who could not take the smallest quantity of Crabs Eyes without these Effects being produced. I myself knew a Person afflicted with the Hypochondriac Disease who was relieved of his Complaints by Pimples appearing between his Thumb & Finger & as immediately oppressed upon their retropulsion or Disappearing. These Appearances are commonly supposed to be



owing to Ucerimony of the Fluores, but falsely  
as they are produced instantaneously.

Vomiting from a Constriction of the cutaneous Pores is another Proof of this Consent. This most commonly occurs in the cold Fit of Intermittents where every Body allows the Constriction to take place. Nothing will sooner check this Vomiting than a draft of cold Water, & we find that the same Application will often times produce Sweat more readily than our most powerful Sudorific Diaphoretic<sup>st</sup> Medicines. Diarrhoea & Dysenteries are frequently if not always owing to a Constriction of the Cutaneous Pores & a Suppression of the Perspiration & we can not cure them unless we first restore the Perspiration. These Disorders are most commonly ascribed to a viciated State of the Fluids, but this can not be the Case, for if it was they would come on gradually whereas we find them to come on almost instantaneously after Exposure to Cold & are as instantaneously cured.

The Principles of Diseases are not as is commonly supposed lodged in the Simple Fibres or Fluids. The Fluids may be affected secondarily; but the Cause of most Diseases appears to be placed in the Solida Viva & Sensorium Commune.



44 Humors which being endued with Sensibility & Irritability are more liable to be affected than the Simple Fibres or Fluids. Thus it is a general practice & a very judicious one to exhibit a Vom-  
mit in Intermittent Fevers before giving the Bark or any other Medicine to check the fever.  
The good Effects however do not depend upon the Evacuation of the Contents of the Stomach but entirely on the sudorific & diaphoretic qualities by which the Constriction of the Surface of the Skin is taken off. This is evident from the same good Effects being produced when the Medicine is given in such small doses as not to occasion an Evacuation but only a Nausea. The Bark should never be given before a Determination to the Surface is produced as it can do no good & may do great harm. When Astringents are applied to check Hemorrhages of the Uterus or any distant part they exert their Effects often times before they could possibly arrive at the part by means of the Circulation. When Opium is used to relieve any Irritation as a Cough we find the Person



much easier as soon as the Opium has arrived in the Stomach. It must therefore act on the Nervous System. The Experiments of Dr. Monro P. A. in Edinburgh proved this beyond a Doubt. He instituted his Experiments on Frogs which Animals will live a considerable time without their Hearts. After taking out the heart of a frog he applied Opium to the Muscles of the Leg laid bare & found it exerted its Effects in the same Manner as when the heart remained, that is the Animal was deprived of Sensibility & the power of Motion. He then applied the Sp. C. & roused the Animal from the Insensibility into which it had been thrown by the Application of the Opium. Here the Medicines must surely have acted on the Nervous System as the Circulation was entirely destroyed. —

From what has been said I am inclined to form this Conclusion, that all Medicines exert their Effects on the body by operating on the Nervous System & those taken into the Stomach by being applied to the Nerves of that Organ which are very numerous & not by being taken up into



I hope I shall be justified in making the following Conclusion from what I have said. —

That our body physiologically considered consists of three parts — Solida Viva or Moving Fibres, Simple Fibres & Fluids; that Diseases must be lodged in one or other of these parts; that the Moving Fibres from their Sensibility & Irritability are oftener affected than the Simple Fibres or Fluids; that Medicines at least those which produce strong Effects, act on the Nervous System; that the Laxity or Rigidity of the Simple Fibres is a fixed & constitutional Infirmary & not an occasional Disease to be removed by Medicine; that the Diseases of the Fluids are not so numerous as from looking into Authors we find they are imagined to be & when they are affected they are rather to be changed & restored to their healthy State gradually by milder Remedies & Diet. —



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Lect 3.<sup>rd</sup>

The Materia Medica comprehends all the Substances made use of in Diet & Medicine. The Pharmaceutical branch has been commonly thought to be Whole that belonged to this Subject, but surely Dietetic part deserves a place as well as that more strictly termed Medicinal, as the Cure of Diseases often depends as much on a well regulated Diet as upon the Exhibition of proper Medicines. —

The Books that are best calculated to assist us in our Inquiries upon this Subject are the following Lewis in his Materia Medica, & the New Dispensatory has given us something useful, but they are to be considered as loose disjointed Materials than a proper System of Materia Medica; he follows the Alphabetical Order by which means his Subject is so interrupted that it is impossible for the Reader to follow him regularly & he is therefore only fit for occasional Consultation Geoffroy has first divided the Substances as got from the three Kingdoms & in the Vegetable he again divides them according



48 to the different parts of the plants made use of  
as Roots Herbs Barks &c But in treating  
of Individuals he has fallen into the same  
Errors & is liable to the same Objections  
with Lewis.

You are to observe that his first & second Volumes  
are much preferable to the succeeding ones for  
these were published under his own Inspection  
the others were published after his Disease from  
erroneous Notes of his Scholars which often  
contain Sentiments quite contrary to his real  
ones.

The celebrated Linnaeus has followed the Bot-  
anical Order in describing the Virtues of  
Substances belonging to the Materia Medica  
but tho' Plants of the same Order & Genus are  
frequently found to correspond in Medical  
Virtues yet as it does not hold universally  
it is liable to Exceptions.

Canthuser's Plan is less exceptionable & prefer-  
able to any other. He ranks them according  
to their sensible qualities by which means  
you have a Number of Substances connected



which correspond in Medical Virtues. But this Plan is not quite Sufficient & he is obliged in many Cases to follow Indications in the Cure of Disorders. —

This Plan is also pursued by the celebrated Doctor Neuman. There is no doubt but Cartheuser's plan is the most preferable. He distributes the Medicines according to the Indications they answer & thence infers their utility in the several Diseases. This plan is also followed by Dr Cullen of Edinburgh whose Materia Medica is in the hands of most of you. Cullen has all the Advantage of any of the others & is not liable to their Exceptions. In this Copy published here Dr Cullen was not at all concerned & it appears to have been printed from the imperfect Notes of some Students who attended his Lectures. It is not so perfect as we could wish it to be or as we could expect it to be had it come <sup>from</sup> the Doctor himself who is so ingenious a Man & successful practitioner. Imperfect as it is, it is but doing justice to



58.  
the book to say that it almost exceeds every  
thing that has hitherto been published on  
the Materia Medica. —

The plan which is pursued in this Work  
is exactly the same with the one I shall follow  
in this Course of Lectures & for this Reason it  
will be particularly useful to you. Great part  
of the Time will be spent in making general  
Observations & Reflections if we had not  
such a Book whereas now I shall have more time  
to make Applications of the Mat. Med: to the  
Practice. I am informed that a new Edition  
will soon be published under the Inspection  
of D<sup>r</sup> Cullen himself which we may reasonab-  
ly suppose will exceed any Thing that has  
ever been published on this Branch. By  
possessing D<sup>r</sup> Cullen's Mat. Med: & Practice  
of Physic you will be enabled to attend these  
Lectures with greater Advantage. In his prac-  
tice you will find the History of Diseases deli-  
vered in a very accurate Manner & by atten-  
ding to this & the Course of Practice he deli-



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vers, you will <sup>reap</sup> more Advantage from these Lectures than you would otherwise do.

In Imitation of Doctor Cullen I shall distribute Medicines under Three Heads according as they are directed to act.

1 Upon Simple Fibres

2 The moving Fibres or Solida Viva

3 The Fluids

These general Divisions are again subdivided into Classes comprehending Medicines of simular Virtues. It is to be observed that these general Divisions are intirely arbitrary & calculated mostly to assist the Memory, it is however no Matter whether they are intirely proper or not provided the Classifications are exact. An Instance of their not being exact we have in ranking Astringents with those Medicines which act on the Simple Fibres whereas their principle Action is on the Moving Fibres.

The first Class to be considered are the  
Nutrientia



By this Term we mean every Thing employ-  
ed by Mankind in their daily Food & thus  
comprehend under it not only those Substan-  
ces which are calculated for the Nourishment  
of the Body but also those Substances which  
are taken in along with our Food to render  
it Palatable.

All our Aliment is of two kinds - Vegetable  
and Animal. As all Animals even those that  
live on other Animals originally live on Vege-  
tables it seems proper to consider Vegetable  
Aliment first

Vegetables are subdivided into those which  
serve for Medicines and those which are more  
properly adapted for Nourishment. The mild,  
bland, insipid, inodorous Vegetables are most  
proper for Nourishment, while the acrid,  
bitter nauseous & those of a strong smell best  
answer the purposes of Medicine. It is how-  
ever probable that there is no plant but what  
affords Aliment to some Animal or other,  
for it is not to be supposed that anything is  
made in vain. Thus some of the rankest poi-  
sons to Man are innocent to other Animals



and some innocent to Man will Kill other Animals. a few Instances will tend to illustrate this. Hemlock which is very poisonous to Men & which was employed by the Antients to deprive their State Prisoners of Life affords a wholesome and agreeable Food to the Horse, whilst Ground Ivy which is at least innocent to Men will Kill the Horse if he eats any quantity of it. Many Vegetables of an Acid Nature may by roasting or boiling be rendered mild. The Indian Turnip which in its recent State is very Acid by roasting it rendered perfectly mild & then affords a wholesome & agreeable Food. The Cassada which in its recent State is very poisonous by proper preparation affords Bread to most of the Inhabitants of the West Indies. In general however we may observe that none but mild & bland Substances are fit for Food or Nourishment. Mustard, Cress & all <sup>the</sup> other acid Substances & spices we employ in Diet of which the Principal are the Aromatics as Pepper &c.<sup>a</sup> are not used as Nourishments but merely to correct any bad Tendency in our Aliment or to render it more Palatable. These are called



## Condiments.

Before we proceed any further it may not be improper to inquire into the Causes of Hunger. Were we to consult all our Feelings we would not find it difficult to Define the Cause of Hunger. But Physicians are not contented with Simplicity & what is evident to every Person. Refinement is necessary to show their Ingenuity & however paradox<sup>ical</sup> it may appear it is certain that few Physiologists have been of the same Opinion with Regard to the Cause of this Sensation. The celebrated Hoffman attributes it to an Acid remaining in the Stomach from the former Meal & this Opinion he thought confirmed from the well known Fact that Acids taken into the Stomach will create or increase this Appetite. The Stomach is often intirely emptied by Worms & purges & Hunger still remains & is often increased. This single Consideration sufficiently refutes Hoffman's Theory. Boerhaave Haller & others suppose Hunger to arise from rubbing or Friction of the folds of the Stomach against each other. They reason thus - When the Stomach is empty



it being a Muscular Organ will contract & the opposite sides being brought together the Folds will rub against each other & produce Hunger. But the Structure of the Stomach will sufficiently refute this Theory for as it is round & Conical it is impossible to contract so much as to bring its opposite Sides ~~into~~ <sup>into</sup> contact & even if it could be the Coats are so defended with Mucus that no uneasiness could be produced unless the Stomach was diseased or the Mucus abraded. This Theory therefore will apply no more than the former. Hunger is to be accounted for solely from the Emptiness of the Stomach. I am fully convinced that no Person in Health ever craves Food while his Stomach is full nor until it is relieved from the Load of the former Meal. Altho' we find Persons who feel no Hunger when the Stomach is empty & others who are continually craving tho' it is full, yet these Persons are never to be considered as enjoying a good state of Health. And Instances taken from a diseased State ought not to be employed in accounting for any Thing in a sound State. The continual craving for Food seems to be owing to some Affection of the Nerves of the Stomach. When we  
come



come to treat of Indigestion we shall consider the Causes to which a Loss of Appetite is owing.

It has been often debated whether Man was intended to live upon Animal or Vegetable Diet, we shall pay some Attention to this Particular.

Not only particular Men but also whole Nations in all Ages have subsisted on Vegetable Diet. The Peruvians a great Part of the Inhabitants of the Southern parts of Asia live almost solely on Dates. In the great City <sup>ies</sup> of grand Cairo & Constantinople the poorer sort of People live almost intirely upon Cucumbers, The Arabs live on Fruit Water & Goats Milk. The Capada alone formerly afforded Subsistence to the wild Inhabitants of the West India Islands. In the Highlands of Scotland we find the People in General live & grow robust on Cats & Onions. On the contrary there are some Nations & those not few in Number who live intirely on Animal Diet. Thus great part of the Inhabitants of Africa live upon Fish. The Inhabitants of Northern Countries, as Lapland, Greenland, Iceland &c. where the Ground is covered almost the whole of year with Frost & Snow so that the Earth cannot furnish



Vegetables for their Subsistence, are constrained to live almost intirely upon Fish & such other Animals as they can procure. The best Accounts assure us that the wandering Scythians & their Descendants the Tartars live solely on Animal Food. The Patagonians are said to have a great Aversion to Bread & are very fond of Animal Food particularly of Horse Flesh. A Nation has been lately discovered in the Eastern Archipelago whose Country is so barren as not to procure any Vegetables not even Grass so that No Animal can live there but Man. These People subsist intirely on Shell Fish which the Sea throws up at every Flood Tide. They spend the whole Period of a wretched Existence, in searching for Food & are but one Degree removed from the lowest of the Animal Creation. Man appears upon the whole to be intended by Nature to live upon both Vegetable and Animal Food; he has both the Dentes canini & molares; The Intestines are longer than those of the Carnivorous and shorter than those of the Herbivorous Animals. We find from Experience that Persons who subsist on Vegetables are weak & relaxed & constantly subject to Disorders of the Bowels. An Animal Diet produces more dangerous Disorders - Eruption on the Skin  
Scurvy



58 Scurvy, Leprosy, Dysentery & other Putrid and Malignant Disorders are often the Consequence of too free a Use of Animal Food. It conduces to the Health of Men to partake of both. In general now a Days the Use of Vegetables is more indulged by the Inhabitants of the warmer Climates while the Inhabitants of the North live principally on Animal Diet. This is consistent with both Reason & Experience?

Of Condiments those that are most generally employed are Salt, Vinögar & Sugar. Salt is employed with Animal Food to render it more savory - it also resists putrefaction. Sugar the most wholesome Condiment we can employ - it is very nutritious & we may justly assert that all Vegetables are more or less nourishing in proportion to the Sugar they contain. It is a powerful Antiseptic, hence is useful in Putrid Diseases. Doctor Pringle thinks that the less frequent Apperance of the Plague & other Malignant Disorders in Europe of late than formerly is owing to the more ~~use~~ general Use of Sugar. It may be extracted from all the esculent Plants.



Whatever Aliments we make use of Chyle is formed from it which is taken up from the Intestines by the Absorbents created for the purpose & by them conveyed into the Thoracic Duct which opens into the Left Subclavian Vein where the Chyle is mixed with the whole Mass of blood from which afterwards all the different Secretions are made, as Urine, Bile, Semen &c. None of these fluids are originally or at least formally present in the blood no more than Rum is contained in Sugar or Spirits in Wheat & Rye. —

We shall now consider Digestion, that process by which our Aliment is converted into Chyle. We shall first consider the Liquors subservient to this process which are the Saliva, Gastric liquor, Bile & Pancreatic Juice. The Saliva by Experiment appears to be composed of Water & a small Quantity of a certain viscid Matter with the Nature of which we are but little acquainted. Heat resolves it into the same Materials with other Animal Liquors. The first person from whom we received any proper Notion of the use of the Saliva was Dr Pringle & afterwards Dr W. B. From the Experiments of Sir



60. Single it appears that upon adding it to a Mixture of Beef Brandy & Water it promoted Fermentation but at the same time moderated that Fermentation so as to prevent it from running into the Acridous or putrefactive & it probably may have the same use in the Body. It is very apt to form Concretions or Calculi like those of the Urine. The Concretions or Calculi are often found in the Salivary Ducts particularly those under the Tongue. The Concretions that are formed about the Roots of the Teeth are owing to the Saliva. With the Gastric Liquor we are still less acquainted than with the Saliva as it is difficult to procure it in a pure State. Nothing tends to shew the Nature & Use of it more than the Experiments of Mr Reaumur on different Birds. He instituted those Experiments with a view to determine the Disputes of the Academicians concerning the manner in which Digestion is performed. His Experiments are not only ingenious, but very accurate. — The Chemical Physicians ascribed Digestion to a Solvent which they said acted like Aqua



Fortis. They even determined in pretence that it was  
 a very strong acid. The mechanical Physicians  
 as Borelli, Bellini, Pitcairne ascribed it solely  
 to Texture & mechanical Force. They considered  
 the Stomach as a muscular Organ & after  
 finding the force which smaller Muscles could  
 exert they endeavored to compute the force  
 of the Stomach. M<sup>r</sup> Beaumont shewed that nei-  
 ther were entirely right tho' perhaps neither were  
 entirely wrong. He began with a Turkey a fowl  
 whose Stomach is remarkably strong & muscular  
 & which always swallow small Stones to assist  
 its Digestion. He made it swallow glass tubes  
 which he found broken in its stomach after  
 sometime. He then tried thin metallic ones  
 which tho' not broken were compressed & rendered  
 perfectly flat. He proceeded untill he got tubes  
 strong enough to resist the force of the stomach.  
 In these Tubes he inclosed grains of barley &  
 stopped up the Ends in such a manner that  
 nothing could escape unless in a fluid form.  
 After those tubes had remained in the Sto-  
 mach two or three days he found that no change  
 had taken place except that the grains were



swelled but not more so than they would have been had they been soaked in any other liquor with the same degree of heat. In this fowl then Digestion seems to be carried on wholly by mechanical force & the Gastric Juice does not act as a Solvent. Its conversion into Chyle certainly depends upon the mixture of certain Fluids but the first Digestion in the Stomach of this Bird depends on mechanical Triture.

He next tried Experiments upon a Hawk whose Stomach is very thin & membranous. This fowl is particularly fitted for such experiments as it throws up whatever it has not digested. He found the thinnest tubes could resist the force of the Stomach. He inclosed in perforated Tubes Flesh & found it converted into a mere mucus without any bad smell. He tried the Mand bones of an Ox & found them dissolved also. He then inclosed grains of barley which were thrown up without being in the least changed. Here then we have a Solvent of a very curious Nature which will dissolve flesh & even bones &



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get has no effect on Vegetables or even the stomach  
of the Animal. From this we are not to infer that  
the Gastric Fluid of Man acts as that of either  
the Turkey or Hawk.

There is no Doubt but that the full digestion or  
conversion of our Aliment into Chyle depends  
on the Mixture of certain fluids. But the first  
Digestion in the Stomach seems to depend wholly  
upon Fermentation. Of this there are three  
Species - the Vinous, Acetous, & putrefactive  
Of their principles we are entirely ignorant - we  
cannot explain them & can only make you  
acquainted with them by Analogy. Of the  
Vinous fermentation we have an Instance in  
Wine, Beer Cyder &c. When these Liquors turn  
sour we term it the Acetous fermentation  
The putrefactive fermentation more commonly  
seems in Animal Bodies. The Vegetables are  
also capable of it. All Substances pass thro'  
these <sup>three</sup> different Species of fermentation before  
they become putrid. The Vinous & acetous take  
place in the Stomach the last in the Intes-  
tines. All the Aliment in the Stomach is



acescent even Fish, for an Acid can be obtained from the Stomachs of all Animals even those that are carnivorous & the Stomachs of all Animals will coagulate Milk. Persons who have for several Days lived on Animal Food when they vomit throw up Acid. —

The acescent Aliment is mixed in the Duodenum with the Bile and is there rendered of an Animal Nature. Bile is another Fluid which is of service in the Digestion of our Aliment. It is only since the Experiments of Dr. Ramsay P. N. H. at Edinburgh have been published that we have any tolerable Notions concerning the Nature of the Bile. Dr. McLurg has since prosecuted this Subject. Those Experiments were made on the Bile of different Animals, but more particularly on that of the Ox — from the Nature of which last all the Opinions concerning the Nature of the Human Bile have been formed — The Bile has been supposed to be of an Alkaliescent or putrescent Nature and that by this property it neutralized the acescent Aliment — It has also been supposed to be of a saponaceous Nature & that by this quality



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it was of use to promote Mixture of the oily and  
watery Parts of our Aliment. D<sup>r</sup> Ramsays Experi-  
ments sufficiently refute both <sup>these</sup> Opinions - When he  
attempted to mix Oil & Water by it he constantly  
found his Endeavours fruitless. He found ~~the same~~  
he could not succeed so well with it as with Sugar,  
which is far inferior in this Respect to Mucilage.  
That it is not alkalescent or putrescent is evident  
from its standing many <sup>Days</sup> without becoming Putrid.  
It will indeed emit a Musty smell but will not  
smell putrid nor generate Insects. All the Fossil  
Acids e.g. Vitriolici has the Power of precipitating  
the green part of the Bile in which the Bitterness  
is lodged - Four parts of Vinegar added to five of  
Bile produced a sweet Liqueor which would not  
coagulate Milk, altho' the least particle of  
Vinegar will do it seperately. Bile mixes with  
Water & Spirits of Wine without separation of  
parts - From these it appears plainly that the  
Bile cannot by any alkalescent tendency neu-  
tralize the acidescent Aliment. All Animals  
are provided with Bile both carnivorous



and herbivorous. In the latter was it putrescent it might not be productive of much inconvenience but in the former it would be highly injurious. We can assign a much better Use for it. All Bitters prevent Fermentation The Bile is one of the strongest Bitters in Nature and from this Quality tends to prevent an immoderate Fermentation either of the acetous or putrefactive kind from taking place in the Intestines. Thus we add Hops to Beer to prevent its turning sour. We administer the Bark in cases of prevailing Acid in the Stomach - We also administer this Remedy in Dysentery & other Putrid disorders. Meat wrapt in Wormwood is prevented from putrefaction -

In the Stomach there is always an acetous Fermentation which urges to the putrefactive in the Intestines We are little acquainted with the Pancreatic Juice. It appears to be of the same Nature with the Saliva. It probably acts principally as a Diluent to the Bile - It may also - -



assist in preventing an immediate Fermentation

We have now considered the Liquors subservient to Digestion & have endeavoured to establish Fermentation as a Cause on which this process depends. We shall now take Notice of a Theory which endeavours to account for this Process intirely from Solution and considers the Gastric Liquors as a Solvent.

The Basis of this Theory are some Experiments published by Doctor Stephens upon taking a Doctors Degree at Edinburgh. The Person on whom these Experiments were made was an Hungarian Soldier who possessed the singular Property of digesting Stony Matters. This Wretch supported a miserable Existence by swallowing Stones for a trifling pecuniary Gratification. His Excrements appeared like Mortar. He would swallow Stones untill his Stomach was greatly extended & upon being struck externally the Friction of the Stones would readily be heard. Various kind of Meat roasted, boiled & raw were enclosed in



68 Tubes of Silver & Ivory perforated with Holes  
or Appertures to admit the Juices of the Sto-  
mach. These were swallowed by this Devourer  
of Stones & discharged at different Times ~~by~~ <sup>in</sup> ~~the~~  
Purges, in the natural Way by Stool in Order  
to observe the changes which were produced.  
These Substances were always more or less  
dissolved according to the Time they remained  
with him & no other Change was produced.  
They were neither Acid nor Putrid and of Conse-  
quence could not have undergone any Fermen-  
tation. Whether these are sufficient to establish  
this Theory remains to be determined. With  
Regard to the Experiments there is no Reason  
to doubt the Truth or Accuracy of them; but  
whether Phenomena observed in a Body so  
essentially different from all the rest of the  
Human Species should be considered as  
generally applicable requires the most se-  
rious Consideration. It is certain some  
Degree of Acidity is present in every Stomach  
& some Degree of Fermentation is necessary  
to produce this Acidity. You will also observe from  
these



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Experiments, that the Flesh of young Animals  
& that which is well done was of easier Digestion  
than the Flesh of older Animals & that which  
was rare done which is likewise contrary  
to the general Opinion. Vegetables also of all  
Kinds were much longer Digesting than  
Animal Substances. Digestion then in the  
Human Stomach appears to depend on  
Fermentation as well as Solution. —



Lect 4<sup>th</sup>

All Vegetables are nutritious in proportion to the Sugar & Oil they contain & according as they are blended together & from the farinaceous substance proper for Nourishment. ~~it will afford~~ The more Sugar or Oil any Vegetable contains the more Nourishment it will afford provided our Organs are capable of ~~a familiarity~~ assimilating. Thus Rye being a sweeter Grain than Wheat affords more to the heavy <sup>hardy</sup> Laborer & others who can assimilate it. It is however from this Sweetness more fermentable & is thus apt to prove purgative for which Reason it is recommended to those who are troubled with habitual Costiveness provided they are not subject to Hysteric Hypochondriac Diseases. The Costiveness which occur in these Habits is not owing to Rigidity but to Laxity & Loss of In Robust & plethoric Habits Vegetable Aliment affords the most Relief I have often known Persons cured of this Complaint by eating Rye Mush & Milk. When Costiveness is owing to Laxity as in Hysteric, an Animal Diet is certainly the most proper - when it is owing to Rigidity & increased peristaltic Motion a Vegetable Diet proves useful.



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A Vegetable Diet is never hurtful to Persons troubled  
with Indigestion & Flatulencies &c. The Stomach  
always abounds with an Acid - the Fermentation  
increases this - besides fixed Air or was formerly  
called Gas sylvestre is generated which has the  
Power of destroying the Contractility & Mobility  
of the Stomach & Intestines. Hence arise Syncope  
& Death. Women of a tender & delicate Constitution  
are frequently seized with Faintings & Convulsions  
from this Cause, more especially after eating Apples  
& Milk. There are certain Vegetables as Cabbages  
Peas &c which are particularly disposed to produ-  
ce grievous Effects in such Persons - their bad  
Effects do not arise from their Acidity as they are  
possessed of that in a small Degree but these Sub-  
stances being of a tough firm Texture they re-  
main a long time in the Stomach & whilst they  
are undergoing vinous Fermentation will evolve  
a large Quantity of fixed Air or Gas sylvestre  
which will distend the Stomach & Intestines &  
produce violent Distension & pain in particular  
Parts. That this is really the Case appears from  
our using Split Peas which being deprived of



7<sup>th</sup> Their outward Husk are rendered much more so-  
luble & may be used without bad consequences.  
Children are particularly liable to be afflicted  
with Flatulencies & Indigestions from Vegetables  
particularly from Nutt unripe crude Fruit, pas-  
try &c. which often produce Convulsions. The  
best Thing to give them Relief in these Cases is  
to administer Emetics instantly. Whenever I  
am called to a Child in Convulsions I always  
inquire whether it has eat any Thing which  
might lie on its Stomach & produce these Ef-  
fects. I have known not only Children affec-  
ted in this Manner but also strong Men from  
Apples & Milk. These were to all appearance in  
a Fit of Apoplexy - They are almost always re-  
lieved by an Emetic. The small frequent pulse  
in this Case sufficiently characterises it from  
Apoplexy in which a very different Method  
of Treatment is necessary. The Diet proper  
for Persons troubled with Hypochondriac or  
Hysteric Disease with Flatulencies & Indiges-  
tions is most undoubtedly Animal Food.  
We should always attend to the State of a  
Person's Stomach before we attempt to prescribe



any Diet for them. The most certain Sign of a<sup>73</sup>  
weak Stomach is when the Eructation or what  
is belched up will flame in the fire, like Oil.  
The following Cure of which I am now treating  
will tend to shew the Necessity of prescribing  
a proper Diet.

A Person who had been long subject to  
Flatulences, Indigestion & other Disorders of  
the Stomach & Bowels, After taking Bitters,  
Chalybeates & Mineral Waters to no Purpose,  
After leaving off all Medicines & being confined  
to ~~Flesh~~ Broths & light Meals easy of Digestion  
eating no Vegetables but Bread, is now relieved  
of those Complaints, digests the Food well and  
I am certain by continuing this Method <sup>will</sup> be re-  
stored to a proper State of Health. Nothing  
is more pernicious than Butter & greasy sub-  
stances of any kind in weakness of the Stomach  
On this Account Pork, Goose, Duck & every other  
fat Substances must be absolutely forbidden  
in these Cases. Altho' an Animal Diet in these  
Cases is to be preferred yet it should always  
be accompanied as much as possible with -  
Vegetable



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Vegetable food for there are instances of Scurvy being produced in a high degree from living too much upon animal food. Here Bread Your common Potatoes are the most proper Substances to be taken with it. A Gentleman of my acquaintance has so weak a Stomach that he cannot eat any Vegetable not even Bread without feeling disagreeable Consequences, but he can eat as much potatoe as he pleases without being at all affected. I mention this to shew You that potatoe does widely makes the greatest part of the Vegetables we use. I cannot agree with what Dr Cadogan says of the bad Effects of Bread in those Disorders. He macerated Bread in Water in 96° of heat & found it became Acid from which he inferred that the same thing happens in the Body. Account this also the case with all kinds of Flesh broth which will turn sour before they become putrid. And from the latest & best Observations it appears probable that all kinds of flesh become acid before they putrify. We must allow that the bread which Doct Cadogan used has this Effect, as there is no



Reason to doubt his Veracity & Candor. It has  
been too much the Case to infer from what hap-  
pens without the body that the same must take  
place within it. Those Experiments in general  
either prove too much or nothing at all.

Bread or other Aliment being taken into the  
mouth is there chewed or masticated & is blen-  
ded with the Saliva. In the Stomach it  
meets with the Gastric Liquor & in the Intes-  
tines with the Bile & Pancreatic Juice.

All these fluids will prevent or check the vi-  
nous or acetous fermentation. Digestion is much  
better performed when the Aliment is well blen-  
ded with the Saliva. You can scarcely conceive  
what a Difference this Circumstance will  
make; for this Reason persons who have weak  
Stomachs should employ Biscuit or hard bread.  
I have known persons so much troubled with  
Acidity that common Baker's bread would not  
stay on their Stomachs & yet they felt no In-  
convenience from the use of Biscuit. Children  
who are fed upon Pap made of flour & water



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or Milk are often troubled with Acidity & Diarrhoeas but upon using biscuit instead of flour they are relieved of these complaints. Bread toasted very hard will often stay on the Stomach when no other Aliment can be retained. In Cases of this Nature it is not sufficient to attend to Diet it is also necessary to regulate the Drink of our patient. In all Cases where a Relaxation of the Stomach takes place all fermenting & even fermented liquors should be entirely banished. I have known even Madeira Wine turn sour upon the Stomach. The best Drink is Toast & Water - a little Wine or Spirits may be occasionally added. When these Substances are taken in moderation they tend to stimulate & strengthen the Stomach & assist Digestion - this was the only drink & Remedy employed by Dr Fothergill in Cases of Indigestion. Various Remedies have been recommended to recover the Tone of the Stomach & to assist Digestion. Dr Cullen advises a Solution of common Salt with



4 times its weight of Spring water acidulated  
with a little Spirit of Sea Salt. This he advises  
to be used as a common Drink & speaks highly  
in favor of it. I cannot say how justly he re-  
commends this as I never have had an Oppor-  
tunity of trying it. I have always found the  
common Elixir Vitriol to answer every pur-  
pose as a Medicine. I advise 20 or 30 Gutt. to  
be taken bis vel ter die in Aq. löff. All the  
Mineral Acids create an Appetite & prevent Fer-  
mentation of every kind & perhaps either of them  
will answer equally well. I must not however  
omit mentioning some Observations made by  
Doctor Smith a Gentleman of my Acquain-  
tance who is now an eminent practitioner at  
Manchester in England. He found that a Solu-  
tion of common Salt was the most considerable  
Stimulus to the animal fibre. He made his  
Experiments upon frogs & found that it would  
make their muscles contract when they were  
insensible to every other Stimulus from whence



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it seems probable that the Mineral Acid joined  
with the Solution of Sal Commune as recom-  
mended by Dr Cullen would be equally ef-  
fectual & in some Cases perhaps preferable  
to the other Acids. There are few disorders more  
common than those which arise from a Re-  
laxation of the Stomach producing Indiges-  
tions &c I will recommend to You to read  
Dr Cullen upon this head in his Chapter on  
Dyspepsia. —

We have considered the Diseases in which a  
Vegetable Diet is improper. We are now to  
mention the Cases in which it is serviceable.

Wherever there is a Disposition to Putrescency  
as in the Scurvy, Dysentery, Putrid fevers &c in  
all Cases of inflammatory Diathesis a Vege-  
table Diet is indicated. All persons that are  
troubled with a Spitting of Blood, Inflamma-  
tory Fever, Pleurisy &c should confine them-  
selves to a vegetable Diet. It is remarkable  
that more people die of Consumptions in En-  
gland than in almost any other place. This  
cannot be owing to the Climate as the Scotch



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Irish who inhabit nearly the same Climate are not near so subject to this Disease. It seems to be owing principally to the Inhabitants living so much on Animal Food. **V**egetable Diet is the best & perhaps the only Remedy in all Consumptive Habits. I have relieved several Persons who had all the Symptoms of an approaching Consumption by confining them entirely to Vegetable food allowing no animal Substance except Milk. This in most cases is allowable. A Vegetable Diet is to be recommended to all persons labouring under Rheumatic Complaints. Putrid Disorders with Petechia were very common in Sydenham's Times as appears by his Works. Those Disorders are now scarcely known in London & it appears that a much greater proportion of Vegetables is consumed in that City than Sydenham's Time. The Dysintery has been supposed to arise from a vegetable Diet particularly from the use of ripe fruit. This Notion is en-



tinely false & groundless & has been very destruc-  
 tive as it prevented the use of those fruits  
 which are most proper for the Cure of this  
 Disorder. Dr Tissot in his advice to the  
 People a book in which you will find more  
 Candor, Humanity & good Sense than in  
 almost any other of equal Size that was ever  
 published has given us several instances of  
 ripe fruits effecting Cures in this disorder.  
 Amongst others he has one of eleven persons  
 in the same family being seized with a  
 Dysentery nine of whom recovered by the  
 free use of fruits, two, the old Grand-Mo-  
 ther & a favorite Child fell a Sacrifice  
 to the unreasonable prejudice of not eat-  
 ing fruit. He also tells us of a Swiss Re-  
 giment in Garrison in the South of France  
 who were almost entirely destroyed by the  
 Dysentery. The Officers ~~of the~~ purchas'd  
 the whole Crop of several Acres of Vine-  
 yard - thence they carried the sick Soldiers



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I gathered the Grapes for such as could not bear to  
be ~~being~~ carried to the Vine Yard, those who were well  
eating nothing else. After this not one died nor were  
any more attacked with the Disease. Not ripe  
Grapes alone are of Service in this Disorder all  
ripe Fruits will answer equally well. We have  
a Fruit in this Country which seems particularly  
adapted to this Disease. I mean the Water Melon.  
Doct<sup>r</sup> Kasselquest in his Travels to the East tells  
us that Egypt after the overflowing of the Nile  
and the Waters again subside, from the putre-  
fying of the Filth which that River brings w.  
it, Dysenteries, Putrid Fevers, & other malign  
Disorders are very common. The Inhabitants  
make Use of the Water Melon in these Diseases  
& drink the Juice of it. This in general performs  
the Cure & very few die of Disorders which, in  
other Parts where a different Method of Treatment  
is pursued, prove so fatal. The Water Melon acts  
by increasing the Excretion by Stool & Urine  
& by supplying a cooling Antiseptic Fluid to the  
System & thus does more Service than the Cordials  
of the Shops which are usually given in such Cases.



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Doctor Hillary explodes the Use of Cardiac &  
Stimulants in the Yellow Fever & trusts prin-  
cipally to diluent acidulated Drinks & a pro-  
per Vegetable Diet. A Gentleman who had been  
Physician to a Naval Hospital at Halifax  
informed me that upon the Return of a Vessel  
from a long Cruise the whole Crew were down  
with the Dysentery. A great Number of them  
died altho the Bark & other Remedies usual  
in this Disorder were employed until one  
of the inferior Officers to all Appearance  
just dying begged to be indulged with a  
draft of Punch. His Request was granted  
& he took off a whole Bowl at a Draught.  
This threw him into a Gentle Sweat & by  
repeating his Draught he in a short Time  
recovered. From this the Hint was taken  
& by the proper Use of Acidulated Drinks  
the whole Crew recovered. The Dysentery is  
a Disorder which often appears in long  
Encampments. The German Soldiers when  
seized with it trust to their Mixture of Vine-  
gar & Cream which they will swallow in



as large Quantities as they can procure & are seldom Dis.  
appointed in their Expectations of a Cure.

The Dysentery if not occasioned by, is always accompanied with, a depraved State of the Bile. What ever will evacuate the degenerated Fluids & at the same time supply a mild antiputrescent Nourishment to the System must certainly be of Service in this Case. A few Doses of the Bark are not adequate to the Disorder & besides the Stomach cannot bear it but rejects it by Vomiting. Ripe Fruits do not only agree with the Stomach in this Disorder but are also eagerly desired by the Patient. A Chronic Dysentery is frequently cured by the Use of Ripe Fruits after it has a long time baffled all the Efforts of Medicine. The best Remedies therefore for the depraved State which takes place in Dysenteries are recent ascent Vegetables particularly ripe Fruits. They produce an alteration in the State of the Bile and at the same time by stimulating the Intestines cause an Evacuation of the Morbid Matter. The Dysentery is never occasioned by Fruits. They will frequently produce Colic, Diarrhoea & Cholera Morbus.



A Colic is often occasioned by Fruits. The fermenting in the Stomach evolves a large quantity of Fixed Air which distends the ~~Intestines~~ Intestines which produces grievous pains and spasmodic Contractions & if speedy Relief is not given will occasion Faintings, Convulsions & Death as happened to a Person who was taken in the Middle of the Night after eating a large Quantity of Cherries, with a violent Pain of the Bowels & an Inclination to vomit. The Abdomen was distended to an enormous Size & tho' every possible Means was tried to give Relief the Person expired next Evening. The Medicine which I have found to afford the most speedy Relief in these Cases is the volatile Salt of Hartshorne or Ammoniac, One Drachm of this dissolved in 4 or 6 Ounces of Water with a few drops of any Carminative Oil & if the Pain is very violent Lig: Laud: <sup>gr<sup>ss</sup> 40</sup> and a Table Spoon full taken every Hour or two according to Circumstances will generally afford Relief. Or it may be formed into Boluses with Conserve of Roses. Five or Six Grains may be given in each Bolus



with a Quarter Half or even whole Grain of powdered <sup>25</sup>  
Opium. Notwithstanding all our Efforts the pain will  
some times continue & the Patient expire. I was called  
upon to visit a Person who about Six Hours before I  
saw him had been seized with a pain in his Stomach  
from drinking a Cup of Butter Milk which had stood  
over Night & had become Sour. I had recourse to Opiates,  
the Volatile Salts, Fomentation to the Abdomen and  
had the Patient put two or three Times into the Warm  
Bath & notwithstanding all these Applications a Vomi-  
ting still remained which would suffer nothing to stay  
in the Stomach & the Patient died within Twelve hours  
from the Time I saw him. From the small frequent  
Pulse in this Case & the Coldness of the Extremities, I  
am morally certain that a Mortification of the Stomach  
took Place which Killed the Patient.

The vulgar Practice of eating Cheese with Fruit is a  
very good one, as Cheese especially when old is of an Animal  
Nature, & will tend to obviate the bad Effects of the Fruit.

A Diarrhea is often owing to a too free Use of Fruit  
It arises from the ascendant Liquor of the Fruit, mixing  
with the Bile & stimulating the Intestines. If attended  
with no other Complaint it scarce deserves the Name of  
a Disease but ought rather to be considered as a Healthy  
Evacuation. If it is troublesome a Dose of Rhubarb will



generally remove it.

A Cholera Morbus is often brought on by the Use of Fruits. The Acid Liquor they produce stimulating the Stomach & Intestines occasions Evacuations both by Vomiting & Stool. Warm Water Warm Tea or Chicken Broth drank plentifully will generally give Relief by diluting & evacuating the offending Cause. If Vomiting should continue merely from Irritability of the Stomach a large Dose of Laudanum should be given & repeated until the Vomiting ceases. If the Patient is plethoric we should advise Bleeding least a Rupture of some Blood Vessel in the Head Lungs or Stomach should be occasioned by the violent Straining in Vomiting. You are to observe as long as the Vomiting is without Spasms there is no Danger & we need not be solicitous about it. But as soon as ever Spasms occur either in the Stomach or other Parts we must have immediate Recourse to Laudanum which is to be given in such Doses & repeated at such Intervals as will Effectually put a stop to the Complaint.



## Lecture 5th.

87-

Vegetable Aliment is the best Preservation against the Scurvy & when this Disorder <sup>or</sup> has actually taken place it is the only Thing to be relied on for a Cure.

Many Disorders seemingly of a quite different Nature have gone under the Name of Scurvy. Thus any Corruption on the Skin for which the Physician is at a loss for a Name is said to be owing to a Scorbutic Habit of Body. This often satisfies both the Patient & Physician & Medicines are given for a Disease which exists only in their Imagination. By the Scurvy I mean what is properly called the Sea Scurvy. This Disorder generally begins with a Lapsitude and Heaviness which is considerably increased in the Morning & Evening especially in the Morning unless the Person has perspired freely in the Night. A Weakness in the Back & Knees & aversion from Motion & Weariness upon moving ever so little. The Respiration is Laborious with a Palpitation of the Heart. The Countenance loses its healthy Colour & becomes blotched & yellow & after some time acquires a greenish Hue. The Corners of the Eye appear Whitish & even yellow. Sadness & Sorrow take place over the whole Countenance. The Gums itch burn & smart. The Teeth are



are frequently elevated in their Sockets Blood flows from the Gums upon their being touched never so little. There also partial Tumors formed in the Gums which are to be cured by opening them. The Gums opposite to the Jaw Teeth are most liable to be affected & the outer & inner Gums are affected at the same time. The Teeth loose their Ivory Whiteness - they become yellow & as the Disorder advances they become black are loose & may be readily taken out. If there is a decayed Tooth in the Head there is a Pain in the Jaw at that place increasing in the Night but not otherwise. The Breath is very offensive. The Saliva is thin & acrid. There are great Pains in the Joints especially in the Knees & Ankles. There is often an acute Pain running from the Ankle along the Tibia to the Knee, sometimes it extends along the Thigh to the Groin. A crackling Noise is heard in the Knee upon moving. Pains are greater in the Evening but upon the Persons getting into Bed & perspiring freely they are considerably relieved - and indeed in sweating the life of Scorbutic Patients may be said to consist. In the beginning there are sometimes pains in the Thorax which are not fixed but seem to fly from one part to another but  
 chiefly



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across the Breast. They are attended with a difficulty  
of breathing with a Sense of weight in the breast. As  
the Disorder advances this weight & Oppression are  
increased & show that the Vital powers are decli-  
ning & that Death will soon close the Scene. There  
is no pain felt from pressing the Thorax external-  
ly. The Muscles over the body are very much  
relaxed & very meagre & they seem as if they were  
separated from the bones. The Skin appears  
from the beginning like what is commonly  
called Goose flesh, hot & dry. In hairy persons  
at the Root of the hairs on the legs & thighs ap-  
pear Blisters which are red, yellow, purple &  
sublivid. In smooth skinned persons there appear  
Spots like flea Bites all over the Skin which  
are not elevated above it which appear red  
livid & purple. Sores from wounds & Ulcers  
change their Colour. They first appear darker  
than the rest of the Skin & as the Disease ad-  
vances they become livid. There appear also over  
the Skin Spots like Ecchymoses from a blow  
which appear yellow, purple & black & some-  
times these Colours are all mixed together



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like those of the Rainbow.

All these Appearances are trifling in comparison with the Tumors that are formed on the Limbs. These are at times preceded by great pain at other times none at all. These are produced in the following manner. On the Surface of the Skin appears a small Spot which is first perceivable by being of a different Colour from the rest of the Skin tending to a darkish brown yellow and a little elevated; this increases from Day to Day running along the Limb. It is at first moveable but as the Disorder increases it becomes immoveable. It has various Colours purple, livid, lead, black & all together. As the disorder advances it penetrates into the Muscles & appears to adhere to the Bones. It communicates an uneasy Sensation of heat to the Touch. This Sensation is very different from that which occasions inflammatory Tumors. Putrid Tumors always communicate a pungent heat to the finger. The Tendons & muscles are affected. They are contracted very much & the patient is unable to extend



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his Leg so that he is obliged to walk with a bent  
knee on Siptoe. It is remarkable that both legs  
are never affected in this Manner at the same  
Time. They seldom affect any part but the Legs.  
These Tumors never inflame nor suppurate &  
never excoriate. They remain untill the Patient  
dies or untill he recovers. There is also a Swell-  
ling of the feet & legs as in the Dropsy which  
it resembles in this that the Ancho swell tow-  
ards Evening. As the Disease advances the  
whole leg is affected. It may be readily distinguished  
from the Dropsy by the Skin being discolored  
it appearing yellow & black - it is likewise more  
difficult to make an Indentation but when it  
is made it is much longer filling up. There are  
no Ulcers formed unless the Skin has been pre-  
viously broken & then a very bad Ulcer is  
produced. Tho' these Ulcers may readily be  
distinguished from common ones by their ge-  
nerating no pus & upon opening them a black  
coagulated blood appears in the bottom. They  
sometimes form fungous flesh very quickly  
which tho' taken away by the Knife or the



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dicius returns as suddenly. These Ulcers are  
commonly situated on the Spine of the Tibia.  
They are much worse when below the Ankle. They  
seldom affect the bone tho' they torment the pa-  
tient for a long time. We have now enumerated  
the Symptoms which without the body we are  
in the next place to take Notice of those that  
occur within it.

Fevors seldom or never attack persons in the  
Scourgy. This is a very happy Circumstance,  
for was a fever to occur it must be of the put-  
rid kind which would soon determine the  
fate of the Patient. They sleep pretty well & are  
never troubled with the headach which is so  
common in other Disorders. The Tongue re-  
tains its natural Appearance except that  
it is sometimes somewhat yellow. They have no  
Thirst, have a tolerable appetite & enjoy  
the full use of their Senses untill the hour  
of their Death. In the advanced Stage of  
this Disorder the pulse is very weak & small  
& beats from 70 to 90 Strokes in a minute  
seldom or never more. It is sometimes tho'



seldom unequal & intermitting. The Patient is generally  
 constive from the Beginning & even for some time before  
 the Disorder comes on but never griped. In the advanced  
 Stage of a Diarrhea & Dysentery sometimes occur.  
 A Diarrhea often proves salutary. Hemorrhages  
 are very frequent from the Nose & Anus. There is no  
 difficulty in making Urine which is in very small  
 Quantity & appears very high ~~colored~~ colored & deposits  
 a very yellowish brown Sediment. The Blood even  
 at the Beginning appears thin & Black. The Serum  
 is yellow. The Crasamentum is dissolved. The upper  
 surface is red & shining below & in the Middle Black.  
 They have grievous Palpitations of the Heart & appear  
 very much fatigued on the least Motion tho' they  
 generally feel well when lying in Bed & speak  
 very loud. They cannot even bear the Admission of  
 fresh Air tho' it is of such Advantage & often they  
 expire suddenly when exposed to it. Of this I have  
 heard a remarkable Instance of a Man who was  
 lying in his Hammock & talking merrily to his Com-  
 panions when the Port holes being opened to admit  
 fresh Air expired as suddenly as if struck with  
 Lightning. Fear & Sadness soon depress them Joy  
 & hope as soon elate them. The Breathing at last



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becomes very difficult. They are subject to frequent  
Faintings & have no Cough at last expire without  
a Sigh or Groan & can scarcely be said to know  
what it is to die.

As to the Proximate Cause of Scurvy it  
appears to be a Retention & Accumulation of  
putrescent Matters that have been gradually  
formed in the System & while the Functions  
are duly performed are carried off by Stool,  
Urine & the Insensible perspiration. The Heart  
may be considered a perpetuum Mobile. It recei-  
ves the Blood from the Veins which it expels  
into the Arteries. In this Cause there must neces-  
sarily be a great Loss of the Vital Fluid. Part  
is carried off by Urine which contains many  
acid corruptible Particles. Part by Stool, but  
the most considerable Part is evacuated by Per-  
spiration which is insensible except in the form  
of Sweat in the ~~Form~~ or in cold Weather. This  
last Evacuation is constant & uninterrupted  
while the Body is in a healthy State. Both the  
Urine & perspiration are acid, putrescent and  
of an offensive Smell. This is evident from Persons  
who do not keep their Feet clean in Summer.



There is also a great Quantity exhaled by the Lungs  
All the Secretions even in Health are of an offensive  
Odor and Quality. This is more remarkable in the  
Sick & particularly in the Scorbatic. The Breath  
is offensive & many other Symptoms we have enu-  
merated above, tho' these may be said to be rather  
the Effect than the Cause of the Disease yet the Breath  
is offensive & the Gums affected in the very Beginning  
of the Scurvy. This Putrescency is different from  
that producing putrid Fevers &c. Putrid Fevers  
are attended with Pain in the Head intense Thirst  
frequency of Pulse & are generally Contagious  
whereas the Scurvy is entirely without these  
Symptoms & is never Contagious. I say Putrid  
Fevers are generally Contagious because I shall  
on another Occasion demonstrate that they are  
not always so. The Causes of Putrid Disorders ap-  
pear to be different. Thus some Species will produce  
a plague, some the Dysentery, some the Putrid sore  
Throat & others the Yellow Fever. From this we may  
be allowed to assert that the Putrid Matter causing  
Scurvy is very different from that of other Disorders  
All the Humours of our Bodies have a constant  
Tendency to Putrefaction. The constant Supply



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of Aliment tends to correct this as Providence has given the greatest part of our Aliment the power of resisting putrefaction. The Stomach is furnished with an Acid which also tends to resist it. There are various Contrivances to guard against putridity - Thus the putrescent matter in health is evacuated by Stool Urine & Perspiration before they can produce any bad Effects, but if our food is constantly of an animal Nature the putridity of our fluids is increased more especially when the Evacuations from the general Emunctories of the body are diminished or obstructed. In the Scurvy the Patient is costive the urine is diminished the perspiration is checked & it appears also that the lungs are affected, hence the noxious parts of our humours are retained & accumulated. In fact we constantly carry the Cause of Scurvy about us hence only Cold & Rust & living on animal food or food of a putrescent nature are wanting to produce it. When these Circumstances are present Scurvy immediately



takes place. In cold Climates where Vegetables are used the Scurvy is prevented, where these are wanting it is soon produced - Scurvy takes place more seldom in warm than in cold Climates, because in the former the Poramina in the Skin are kept <sup>still</sup> open & the putrescent Matter is carried out - In Northern Climates the Scurvy is produced tho' they live in the same Manner as in the Southorn. The Inhabitants in North are affected with only in the Winter.

Two Fleets sailing from Europe at the same time having the same Provision one Stationed on the Coast of North America the other at the West Indies, the Men in the former will be affected with the Scurvy the latter perfectly free from it. In the West Indies the Sailors as it is said living upon salted Provisions or the Common Provisions of the Ship perspire Salt in their Sweat in such Quantities as to exceed the Bounds of Credibility so as to be collected on the Instep when tasted it was Salt & acid & even destroyed & wore out the Leather of the Shoes. If so considerable a quantity is collected on so small a part how great must be the Discharge over the whole Body which in these warm Climates we may say almost Dissolves in Sweat. How different must be the Case in Northern Climates where they do not sweat at all. From all this we conclude



98 we conclude "that the Proximate Cause of the Scurvy is no other than a Retention & Accumulation of Putrescent Matter in the System."

With Regard to the Occasional & Predisposing Causes of the Scurvy we may in general observe, that whatever tends to or actually produces Putrescency in the System may prove the Exciting Cause of it. Thus the Exciting Causes may be various. The Principal are cold Air with Moisture & such Food as is of a Putrescent Nature or is of Difficult Digestion or affords little Nourishment. Unless some or other of these take Place a Person in Health will have little to fear. Moisture has been accused of predisposing to the Scurvy but without cold it will never produce this Disease, tho' it may produce the Putrid Fever & Dysentery. That the Scurvy is not occasioned by Moisture without Cold appears evident from various Considerations. The Inhabitants of warm, moist Climates are seldom or never afflicted with the Scurvy. The Inhabitants of Venice who may be said to live in Water scarcely know the Scurvy, even by Name. The Inhabitants of the Northern Climates, Russia - Sweden Lapland & Norway where in the Winter all the Lakes & Rivers are frozen up in such a Manner that no Exhalations can arise are frequently afflicted with



with the Scurvy. This Disorder generally attacks them in the Winter & in the Spring they are relieved from it. It appears from the Journal of the Seven Sailors who died of the Scurvy in Greenland which was found after their Death that during the eight Months they were there they had but ten Cloudy & Foggy Days. It likewise appears from very accurate Journals kept both by Sea & Land that the Scurvy seldom or never makes its appearance while the Thermometer is above  $70^{\circ}$ . altho' the Sailors live on salt Provisions but it generally appears when the Thermometer falls below  $60^{\circ}$ . It is not Moisture but Cold that produces the Disease.

The Aliment which <sup>con</sup>produces most to this Disease is Animal Food especially such as is salted. There have been many Disputes among Physicians, whether Salt or the Meat conduces most to this Disease. Some have accused the Salt alone while others declare the Salt to be perfectly innocent & ascribe the bad Effects solely to the Animal Nature of the Aliment. Those accuse Salt in support of their Opinion tell you of the Laplanders who live almost wholly upon Animal Food preserved by the Cold of their Climate who never Use Salt & are seldom



or never affected with this Disease. They also  
 report that the first Winter Luebeck was taken  
 the English Soldiers lived chiefly on Salt Meat  
 & great Number of them died with the Scurvy, the  
 next Winter they lived upon Meat preserved in  
~~the~~ <sup>the</sup> ~~oil~~ with the Cold without any Salt & continued  
 intirely free from this Disease. Neither of these  
 Arguments however are conclusive. The Laplanders  
 use beside the Animal Food the Milk of Rein-  
 Deer which they take sour & even place it before  
 the Fire & bury it in Skins to render it acid, by  
 this they sufficiently <sup>counteract</sup> the putrid Tendency of the  
 Aliment. With Regard to the other Argument,  
 waving the Consideration that the first Winter  
 on Account of the War the Soldiers were upon  
 very hard Duty exposed to many Hardships  
 particularly to the Cold by which the Perspiration  
 would be checked & a Foundation laid for the Scur-  
 vy & that the next Winter all was peaceable &  
 quiet & the Soldiers might consult their Ease  
 & Health, waving these Considerations I say, we  
 may observe that after the Disease had produced  
 such Fatal Consequences, every possible Means  
 would be employed to prevent its Return. There  
 is not a single Instance of the Salt alone producing  
 the



the Disease. We must also allow that fresh Meat is not so apt to produce this Disease as that which is salted. That fresh Meat is of itself capable of producing the Scurvy I lately met with two remarkable Instances, the one in a Boy of Eight years old, the other in a young Gentleman who were both highly Scorbutic - neither had eaten Salt Meat but both were remarkable for being very fond of Flesh & not eating Vegetables. Salt & Flesh combined may perhaps produce Effects which neither would do singly - This appears probable from what happens with some Substances used in Medicine particularly Saline ones. Salt renders Flesh harder & of more difficult Digestion by which Means it is retained longer in the System & becomes more putrid. Salted Fish, Butter, Cheese & indeed all Animal Substances tend to excite Scurvy. Salt Butter is generally rancid & putrescent. New Cheese is one of the most insoluble Substances & most difficult of Digestion. Old Cheese is generally putrescent if not already putrid.

The best Preservation against the Scurvy are a Vegetable Diet & Exercise. Vegetable Diet prevents this Disorder by obviating the putrid Tendency of our Fluids - Exercise prevents it by keeping

up



up the Perspiration by which the <sup>de</sup> generated parts of our Fluids are evacuated & not suffered to accumulate. When a person is attacked with the Scurvy Exercise will be of no Service and indeed the Solids are so much relaxed that much Exercise can not be used. The only Thing the Patient will have to rely upon for a Cure is a Vegetable Diet & Vegetable Acids, as Lemon Juice Lime Juice &c. which always prove Effectual unless the Person is in the last Stage of the Disorder. The Mineral Acids will be of no Service & we may in General observe that no Substances prove useful in this Disorder but those that are liable to undergo the Acetous Fermentation & are convertible into Succum et Sanguinem. The most powerful Antiseptic the Peruvian Bark itself will be of no Service without a Vegetable Diet & when this can be procured the Use of all Medicine be superfluous. Unless a Person begins to mend from the first Day he enters upon a Vegetable Diet there are no hopes of his Recovery & it is a general Observation that if a Person in the Scurvy lives two Days after being brought on Shore & using Vegetables he will get well. When a Person is brought



so low with this Disorder that his Stomach can not retain & digest Vegetables there are no hopes of his Recovery. Of the Efficacy of Vegetable alone in curing the Scourvy there was some time ago an Instance in the Pennsylvania Hospital. A Person was admitted for this Disorder who ~~was~~ not in the last Stage was very much Affected with it. He was put upon a Vegetable Diet from his first admission - he recovered in a short time without the Use of any other Medicine than the Elixir Vitriol a few drops of which were ordered him two or three times a Day with a little Water. This was given more to satisfy the Mind of the Patient than from any Expectation of its Usefulness. The two Cases mentioned above were cured by Abstinence from Animal Food & living on Vegetable without the help of any Medicine. The Tumors were dissolved with by Bathing them with Vinegar & Lime Juice. Of Vegetables Cresces are particularly adapted for this Disease - they may be taken in such Quantities as to afford Nourishment - By their Stimulus they will encrease the Secretions & Excretions by Stool Urine & Sweat & thus carry off the degenerated Fluids while at the same Time they will correct the



the putrescency of the remaining Part by their  
 & Acrescency. For drink Lemonade & weak punch  
 will prove most grateful to the Stomach will  
 obviate the putrid tendency & encrease the Ewa-  
 cuations by Stool & Urine. The different Symtons  
 which occur are to be treated in the same Manner  
 as if no Scurvy was present. The Tumors are best  
 dissolved by bathing them with Limejuice &  
 Vinegar.

Not only the recent Vegetables but also those  
 that are preserved are Excellent preservatives  
 against the Scurvy - of this we have had a re-  
 markable Instance not long ago. We may ob-  
 serve that Physicians have in general conducted  
 less to the Improvement of our Knowledge in  
 the Nature & Cure of this Disorder than Sea Men  
 Such as Lord Anson, Capt. Cook &c. Capt. Cook  
 in his second Voyage round the World carried with  
 him great Quantities of Cabbage preserved by Salt  
 known by the German Name of Sauerkraut,  
 during his whole Voyage which was of Three  
 Years he lost but five Men two of whom died  
 of Consumptions, two by Accidents & one of a  
 Fever. Not the least Symptom of Scurvy appeared  
 among



among his Men. This remarkable Healthiness -  
he attributed intirely to the Sauer Kraut & also to  
the free Use of Vinegar. This Sauer Kraut is the  
Invention of the People in the Northern parts  
of Europe & is used during the Winter by all  
those who inhabit the Countries to the North-  
ward of Great Britain. Before it is boiled all  
the Salt is carefully washed out & it is rendered  
slightly acid.

I have been thus full upon this Disease  
not merely to make you acquainted with the  
History & Nature of it, for that you might find  
in every Book but chiefly to shew you the Effects  
of Diet in Medicine. It is however of the utmost  
Importance for a Physician to be acquainted  
with this Disorder for it serves to confirm  
the Opinion that the Fluids may be primarily  
affected - how gradual is it in its Approach!  
How certain in its Effects! How fatal in its  
Consequences.

When the Solids are affected we observe  
that the Attack is sudden - in this Case the Cure  
is to be performed by Medicines. In the former  
Case the Disorder is not be removed until an  
intire



intire change in the Fluids by Diet. It is  
 T said that no less than 86000 Men died in  
 the Service of the King of Great Britain in  
 the War before the last of the Scurvy.

I have taken no Notice of the different  
 Opinions concerning the proximate Cause  
 of this Disorder, but have confined myself  
 solely to that which appears to me most ra-  
 tional & at the same Time most readily  
 accounts for the Method of Cure







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## Lecture 6.<sup>th</sup>

We are in the next place to speak of Drinks. The general use of Drink is to supply Fluid to the system to promote the Solution & to expedite the Evacuation of the Aliment out of the Stomach. Drink taken in moderate Quantities facilitates Digestion dilutes the Chyle promotes Absorption & thus assists Nutrition. When taken in large Quantities it urges the food out of the Stomach before it is sufficiently digested accelerates its motion thro' the Intestines by which means Absorption is prevented & hence hinders Nutrition. —

Persons who fatten Poultry for the Market allow them no drink by which means they are fattened in a much shorter Space than they otherwise would be ~~all~~ their food being converted into Chyle. Drink keeps fluid the Lymph by diluting it & hence prevents Obstructions & Stagnation in the Glands & those Disorders which arise from these Causes



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The same thing happens in the Sanguiferous system; hence the whole is kept in a proper degree of fluidity - Secretion is carried on in a regular manner - the Insensible perspiration is kept up & thus the degenerated parts of our Fluids are evacuated before they can be accumulated so as to produce Disease. Capt. Cook thinks that the reason why the Scurvy did not appear among his Men was as much from allowing them as much Water as they chose to drink as from any other Cause for during the whole Voyage the Men were not reduced to an Allowance of Water. Those Effects are all produced from simple Water & we may in general observe that all Substances are proper for drink in proportion to the Water they contain - Various Substances have been added to render it more palatable or for particular purposes to render it more nourishing or more healthy - thus Malt is added to Ale & Beer to answer the first



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Acids are added to Water to make it quench Thirst  
These may in general be referred to the following Heads.

1. Thirst is occasioned by a Defect of fluids in the System by which the Secretion of the glands in the Mouth & Fauces is diminished & likewise by the Air drying the Mouth in its passage to & from the Lungs.
2. It is occasioned by solid Viscid Food if it be taken in large Quantities.
3. By Alkaliescent Aliment especially if it has acquired any thing of a putrefactive taint.
4. Thirst is occasioned by an increase of action of the Heart & Arteries more particularly when the heart is so increased as to constitute fever. In this last case the Thirst is out of all proportion to the heat of the Body & appears to be owing to a Constriction of the Fauces & is often intolerable. That the Thirst in this case arises from Constriction is evident from appearing in the cold fit of an Intermittent where there is no heat. It is only to be removed



ced by removing the Constriction. I am here led to  
 consider the use of Drinks in Fevers. —

Physicians have had very different Opini-  
 ons on this head some enjoin their patients  
 a rigid Abstinence from drinks while others  
 indulge them to the utmost of their Wishes. For  
 my own part I cannot believe that any In-  
 convenience can arise from allowing our  
 Patients drink plentifully provided he does  
 not drink too large Quantities at once.  
 Large Draughts overload the Stomach in-  
 crease Oppression augment the fever &  
 thus prove hurtful. Moderate draughts  
 frequently repeated are of considerable Ad-  
 vantage. They increase the Excretions by  
 Stool Urine & Sweat supply fluids to the  
 System & tend to keep up a gentle Perspi-  
 ration which has a great Tendency to moder-  
 ate the fever. The heat is never so intense  
 when there is a gentle Perspiration. When  
 Thirst arises from a Constriction of the pores  
 which we know to be the Case from  
 their



their Clamminess & from the intolerable Thirst<sup>T</sup> which the patient complains of whilst he is drinking - it is only to be relieved by taking of the Construction. This is to be done by holding a Samarind or any other acid in the mouth which by stimulating the Ducts will occasion a more copious Secretion & Excretion of the fluids into the Mouth. In this case the cause seems chiefly local & is to be removed by local Applications. —

We are in the next place to consider what Drinks are best in particular fevers. In all Inflammatory fevers in general acidulated Drinks are the most proper - whether this is the case also in cases of Topical Inflammations as in Pleuritis & Peripneumonies is a Matter of Doubt. These disorders are generally attended with a cough & it is well known that Acids will increase a Cough for this Reason I have been deterred from using them in these Diseases altho' they



are in other Respects very proper. I have made  
 the Experiment I have always been obliged  
 to do <sup>of increasing the Quantity.</sup> on Account. In any Case they  
 can be exhibited without this effect they will  
 certainly prove useful. Generally in these  
 Cases recommend a Hyssop of barley-wa-  
 ter in which some Raisins prunes or Li-  
 quorice Root have been boiled. This affords  
 an agreeable cooling Drink & also tends to  
 keep the body open which is one of the prin-  
 ciple curative Indications.

Acidulated Drinks are highly useful in  
 putrid fevers Dysenteries Bilious Vomiting  
 & whenever there is a Disposition to Putre-  
 faction. In these Cases Rhenish Whey in  
 which some Cream Tart. has been dissolved  
 ℥ij vel ℥iij to ℔ij afford a very agreeable  
 & wholesome Drink. This I have often  
 found to be of great Service & I have often  
 times had Occasion to use no other Reme-  
 dy in the Measles. It will prevent peripneu-  
 monic Symptoms the Diarrhoea & Dysen-



try which are so often the consequence of this disorder. It has also this Advantage it has the appearance of Art with the patient & bystanders & the physician should always endeavor to rise above an Old Woman in his prescriptions.

Stimulated Drinks are not so proper in Nervous fevers. In these there is generally a great Oppression at the Stomach arising from Debility. Acids tend to encrease this Oppression & likewise to produce flatulencies. On this Account of Debility we cannot administer the Neutral Mixture so freely as in other disorders. Saline Substances given with a view of opening the bowels, often occasion Flatulencies & Oppression. In these disorders something moderately stimulating & comfortable to the Nerves is required. Infusions of Sage or Balm, Wine & Whisky in the advanced Stage Mustard & Whisky is attended with happy Effects.



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Acidulated Drinks are very improper for  
Those who are recovering from intermittent Fe-  
vers. During the cold fit our patients  
should drink nothing at all or at least as  
little as possible. During the hot fit  
& Intermittions Infusions of Chamomile  
or Centaury are undoubtedly the most  
proper. But our Patient oftentimes requires some  
Thing more grateful & during the hot Fit we may  
indulge him with acidulated Drinks but at no  
other Time. Every Thing which debilitates the Sto-  
mach will in Convalescents from Intermittents  
bring on a Return of the Paroxysm. It has been  
a Question agitated among Physicians whether  
warm or Cold Drink is most proper in Fevers.  
Some are for rejecting cold Drinks altogether  
while others highly extoll them. In all Topi-  
cal Inflammations & in Inflammatory Fevers in  
general cold Drinks are improper & should  
be altogether abtained from, but in all Nervous  
Putrid & Remittent Fevers they are much more  
proper than warm drinks & may be used with  
considerable



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considerable Advantage. This is evident from the Practice of the Spanish & Italian Physicians, who give their Patients in Remittent Fevers cold Water & in Summer cool it with Ice & find considerable Advantage from this Practice. In general we may observe that in all Inflammatory Fevers where the Action of the Heart & Arteries is too great cold Drinks are improper. In all Fevers where their Action is too weak & the Vis Vita sunk they are highly useful. In low Nervous Fevers nothing is so grateful to the Patient as a Draught of cold Water but with this Gratification they are frequently deprived thro' the Prejudice & Ignorance of the Physician. Cold Drink in these Cases is much preferable to warm which relaxes the Stomach & System already too much debilitated.

Drink should be frequently administered in a Nervous Fever oftener than they ask for it for they have generally a Delirium & a perfect Insensibility to their own Concerns. It has been a common Custom in this Country tho' not so much now as formerly to drink large Quantities of



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Punch in warm Weather. This is a very pernicious Custom - The Acid weakens the Tone of the Stomach, produces Flatulencies & lays the Foundation for the Gout in the Extremities, in the early Period of Life & in the Stomach & Head in a more advanced Stage. The Spirit contributes by a slow but as sure Degree to the same End. A Remarkable Instance of the Effects of Intemperance we have in the West Indies. The Men who are in general very Intemperate seldom arrive at any Thing like old Age but are generally carried off at an early Period of Life. The Women who lead a ~~very~~ Temperate Life are in general ~~very~~ healthy & often live to a very old Age.

We are next to speak of the Use of Drinks in the Dropsy. This is in general accompanied with a <sup>very</sup> great Thirst from a Constriction of the Fauces which is not to be relieved by Drink & as there is <sup>too</sup> great a quantity of Water



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in the System Drink seems to be highly improper. I knew a Surgeon of Eminence in London who was cured ~~by~~ of a Dropsy by a rigid Abstinence from all kind of Drink - His Abdomen was so much distended with Water that it was actually burst, the Citatrix of which he bears to this day - He kept a plum or Tamarind constantly in his Mouth & sometimes moistened them with Wine in order to allay the intolerable Thirst, but no Fluid whatever passed his Tongue. It is true some people have been relieved of a Dropsy by drinking large quantities of Water & bringing on a Vomiting Purging & a copious discharge by Urine. This is not owing directly to the Water but it proves the Cause of the Cure mediately by its Stimulus. It is however a very precarious Remedy and if not attended with those Effects must certainly prove Destructive -

We are in the next place to consider Condiments - Condiments are all such Substances as



are taken in with our Food to correct any bad Tendency it may have or to render it more palatable & agreeable to the Stomach. The first to be considered are the Aromatics — These are certain acrid Substances which we take in with our Food to render it more palatable. In the warmer Climates are Cinnamon Nutmegs Cloves, Mace, Pimento &c. Analogous to these in the Northern Climates are the Seeds of Anise, Carraway, Fennel, Coriander &c. and all the sweet Herbs — They Stimulate the Stomach promote the Peristaltic Motion, are Antispasmodic, taking off the Spasm in the alimentary Canal & Antiseptic. From these qualities they appear to be very proper to accompany Vegetable Food & hence the Use of them should be confined to the warm Climates of which they are the Produce the Inhabitants of which live mostly on Vegetables as Rice Milk, Dates &c. In the Northern Climates where they live chiefly on Animal Food they are very improper. They increase the Stimulus of



of the Food & render the Fever which always accom-  
~~panies it~~ greater Digestion greater. Animal  
 Food is of itself sufficiently stimulating and  
 savory without their Assistance. They ought  
 principally to be avoided in the Prime of Life  
 as like all other Stimulants they destroy the  
 Tone of the Stomach & lay the Foundation for  
 early Diseases. Persons who use these Substan-  
 ces freely early in Life when old Age comes on are  
 troubled with Flatulencies, Indigestions, Costiveness  
 hence Obstructions in the Liver & other Viscera &  
 the whole Train of Disorders consequent upon these  
 are produced. If they are very proper it is only in  
 old Age when the Torpid State of the Stomach requi-  
 res something stimulating to excite its Action.  
 The Condiments most proper to accompany Animal  
 Food are the different kinds of Cresses, Radish  
 Horseradish, Mustard & all other plants of this  
 Kind. They stimulate the Stomach are Diuretic  
 Diaphoretic & thus carry off the degenerated  
 Parts of the Fluids. The same may be said of Leek



Onions & Garlick which also very properly accompany Animal Food.

The Condiments more generally employed are Salt, Vinegar & Sugar.

Salt is that most universally employed it is the most sapid & least apt to fall. It has been said to be Antiseptic. This seems to be contradicted by our using it with Vegetables, & Carniverous Animals are poisoned by it whereas the Graminiverous are very fond of it & surely it can not act here by any Antiseptic Quality. Salt is particularly proper to accompany a Vegetable Diet. It stimulates the Stomach assists Digestion excites the Appetite & promotes the Secretion of Saliva and the Gastric Liguor. Animal Food preserved with Salt is indeed hard & firm & of Difficult Digestion & thus predisposes <sup>to</sup> the Scurvy & other Putrid Disorders. Salt Meat is also very proper for Persons troubled with Worms particularly the Tape Worm. When Salt is applied to Worms out of the Body it is found



to destroy them. Sheep are subject to a Disorder  
called the Rot it is owing to a Worm in the  
Liver. Salt is found to cure<sup>it</sup> & if Salt be given  
to the Sheep from Time to Time they will never  
be afflicted with this Disorder. For this Reason  
the Farmers in those Countries where Salt is  
plenty put large pieces of Rock Salt into the  
Sheep Folds that the Sheep may lick it when,  
ever they have a Mind. Whether this first gave  
the Idea to the Physicians of prescribing Salt  
for the Cure of Worms is immaterial. Certain  
it is that much Benefit has been received from  
its Exhibition. D. Rosen<sup>von Rosenstein</sup> lately, first Physician  
to the King of Sweden, always directed his Pa-  
tients to live two or three Weeks upon Salt Meat  
before they took any Medicine for Worms. He  
also directed them to eat a piece of Salt Meat  
or Fish, Herring for Instance, for supper & not  
to drink~~ing~~ any thing for some Time after it, by  
this Means the Worms were not only deprived  
of their proper Nourishment but were also excee-  
dingly distressed by the Salt & also yielded more



readily to the Medicines administered. A good Domestic Medicine for Worms is a little Salt mixed with Molasses & taken every Morning for two or three Weeks this will seldom fail to effect a Cure. Salt has been much recommended of late as a Specific in spitting of Blood as also in Vomiting of Blood. I have given it a fair Trial in four Cases. The Dose is two or three Spoonfuls a Day either dry which is the best Method or Dissolved in Water. In one Case in which I tried it, it had no Effect. In three other Cases the Complaint was relieved but other Medicines were combined with the Salt which might have as great a Share in producing Relief as the Salt. In the two following Cases it had very good Effects. I was called upon to visit a Gentleman then about 32 years of age whom I found spitting up clear Blood from his Lungs - He had never been troubled with this Complaint before & was free from pain or any uneasy Sensation in the Breast & his Pulse was neither hard nor full. He  
 Knew



knew not what to attribute this Disorder to unless  
 that some Days before he crossed a Creek which  
 proved to be deeper than he expected so that  
 his horse was obliged to swim & he got wet up  
 to the middle. I ordered him to loose about  
 ℥ij of blood & ℥ij Sal. Glaub: ~~to be taken~~ <sup>2<sup>nd</sup> 4<sup>th</sup></sup> hora  
 The Medicine opened his Bowels gently & he  
 was relieved considerably of the Spitting of  
 Blood. I advised him to continue the Me-  
 dicine & to use Barley Water for common drink  
 & to live very low. But the next day in the  
 Afternoon the spitting of blood returned as  
 bad as before altho he had taken the Med-  
 icine regularly & strictly complied with the  
 Regimen I prescribed. I then ordered him  
 to loose ℥ij more of blood & to take ℥ij of  
 Pulv: Sal: Marin: quaque secundo: hora by this  
 course <sup>he</sup> in a very little time recovered of his  
 Complaint & has never had a Return of it  
 to this Day. Some Time after I was called  
 to visit a Lady about 50 of a delicate  
 habit of body who had been troubled all



The Winter & Spring with what is commonly  
 called a cold & troublesome Cough & Un-  
 easiness in the breast & low fever. The Day I  
 saw her she had been seized with a pitting  
 of pure blood from her Lungs. As she was ra-  
 ther weak I never bore bleeding well I order-  
 ed her to lose only  $\text{Zviij}$  of blood & to  
 take  $\text{℥ss}$  Sal: Glaub: quass secund: hora.  
 As this produced no Relief & the case was  
 now attended with faintings truly alarm-  
 ing I ordered a blister to be applied to the  
 upper part of each arm & half an <sup>an ounce</sup> Teaspoon-  
 ful of common Salt to be taken every 2  
 hours As this disagreed very much with  
 her Stomach I ordered a strong Solution  
 of Salt & Water to be made of which she  
 was to take as much at a time & repeat  
 it as often as her Stomach would bear  
 This still continued to nauseate her Stomach  
 as indeed every thing did she took. She  
 was after some Time relieved of her com-  
 plaint & has had no return of it. She used



the Solution for several Weeks after he was con-  
valesced & continued under a very strict Regi-  
men for several Months. I have since had  
Recourse to Salt in several other Cases & al-  
ways with evidently favorable Effects. —  
Vinegar gives a grateful Taste to our aliment  
stimulates the Stomach & excites the Appetite  
It is a very proper Condiment for Animal  
food as it resists the Tendency which that  
has to Putrefaction. It is also very useful  
with Vegetables as it determines to the Az-  
etous Fermentation & thereby prevents the  
bad Effects of the Vinous; For during this  
last as we have already said the noxious  
Gas is generated. Vinegar however to produce  
these Effects should be pure & unmixed  
When it contains a Portion of unfermented  
Saccharine Matter it is liable to under-  
go the Vinous Fermentation & to produce  
all the bad Effects of recent Vegetables. —  
Sugar is one of the chief Ingredients Vin-



died the principle of Nourishment in Vegetable Aliment. I am not now however to consider the nutritious qualities but to speak of it as a Condiment. It cannot be used for any length of time & in large Quantities as it will pall the Appetite. It is liable to undergo the Vinous & Putrid Fermentation & hence is capable of producing all the bad effects of ruint acurcent Vegetables. It is powerfully antiseptic & hence is a very proper Condiment for Animal Food with which it ought to be used in preference to common Salt. That preserved by Sugar is not undred so hard as that preserved by common Salt & hence is more soluble & easier Digestion. This we may observe very readily in bacon. Some people have their bacon much more soft & juicy than others which is entirely owing to the mode of curing it. Those who use Sugar along with their Pickle will have their bacon much



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much nicer than those who use Salt alone.  
It is likewise observed that the hogs in the  
West Indies which live on Cane have their  
meat much more tender than those which  
live on other food. It is customary among  
the People in the Northern parts of Europe  
to use sweet Sauces with their Meat especi-  
ally in the Winter. It is also the practice in  
some part of New England to use Melaf-  
res with their bacon & other meat; chiefly  
in the Winter, for in the Summer it is  
not either useful or necessary. This is a  
very judicious practice. As Sugar is liable  
to undergo the Vinous & Acetous Fermenta-  
tion it is prejudicial to those who are trou-  
bled with Flatulencies Indigestion & a  
prevailing Acid in the Stomach by increas-  
ing that Acid. It is useful in all cases  
of Rigidity & whenever there is a Disposition  
to Putrescency.

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Sugar has been accused of producing disorders



of the Teeth. This it was thought to do by sticking  
 in to them becoming acid & then corroding  
 them. But how so soluble a substance as  
 Sugar can stick to the teeth & corrode them  
 especially if we consider it must ferment  
 before it becomes Acid; is to me perfectly  
 unintelligible. How can an acid corrode  
 the Teeth when we see that whole Nati-  
 ons live upon Raisins which are much  
 more aciscent than Sugar without having  
 their Teeth affected more than others  
 who taste Sweets. It is probable that  
 hot Teas, hot Coffee & the free use of spi-  
 rituous Liquors contribute much more  
 to produce Disorders of the Teeth than  
 Sugar. There are two Causes to which  
 principally assign the early Loss of  
 Teeth in this Country. —

In the first place I think we may justly  
 accuse the Climate. There is no place  
 where the Vicissitudes of heat & cold  
 are greater than here - hence we are



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subject to Rheumatic Affections of the head  
& face which generally affect the Teeth.  
The second Cause operates chiefly on the face  
& Lip. They are frequently troubled with Indi-  
gestions & other disorders of the Stomach  
which we know affect the Breath & Teeth.  
Foreigners observe that the Women in ge-  
neral of this Country have bad Teeth. -  
Sugar has also been accused of producing  
& increasing Worms in the Body. It has  
however quite a different tendency for  
when applied to a worm out of the body it  
will instantly kill him. Whilst a Worm remains  
at Rest in the Intestines the Patient is easy but  
when he crawls along the sensible Membrane of  
those parts a great pain & often Convulsions are  
produced. This often happens when the Patient  
has eaten a Quantity of Sugar & it is commonly  
ascribed to the Worm moving towards the Stomach  
through Eagerness to get at his favorite Food.  
But we find when Milk the proper Nourishment



of Worms is taken no such Effects follow; And we often find that Convulsions are produced when any Efficacious Medicines are taken to destroy the Worms. We must therefore conclude that these Effects are owing to the Worm moving from the Stomach by that principle of self preservation which teaches him to avoid the Food which would prove his Destruction as it is to him a Poison. It is highly probable that the less frequent Appearance of Worms & the Disorders arising from this Cause is owing to the more general Use of Sugar.

Since the Use of Sugar has become more common many Disorders which formerly were very frequent seldom or never appear. A great Change has lately taken place with regard to Diseases. In the last Century when people lived principally upon Meat & strong Food the Diseases were in general of the Inflammatory & putrid Kind. Since Tea & Coffee with Sugar have been generally used those Disorders have  
been



been greatly diminished & the whole Clan of Nervous Disorders have made their Appearance which were very rarely known among our Ancesters. If we consider that Nervous Disorders are not so fatal as Inflammatory & putrid and are more readily cured we shall have great Reason to be satisfied with the Change. We are also relieved from that loathsome Disease the Leprosy which frequently afflicted our Ancesters who were obliged to build Lazarettos or Hospitals to confine the Lepers & to cut them off from Communication with the healthy.

If we likewise consider that our Intellectual Faculties are as much improved by living on Vegetables as those of our Ancesters were obtained by living on gross Animal Substances we would have still more Reason to be satisfied with the Change in Diet. That Animal Food dull the Faculties artful Gamsters bear Witness. I have heard of a Gentleman who realized a princely Estate by his Skill in Chances whenever he



he expected to be deeply engaged in Play in the Evening he abstained from Dinner and confined himself to his Room the whole Day meditating upon & calculating the different Chances, taking for Nourishment only Tea Coffee or very thin Broth.

The finer the Sugar the less subject it is to Fermentation. Coarse Sugar is more fermentable hence becomes more acid & laxative. Many however have been deterred from using fine Sugar on Account of the Quick Lime <sup>which enters</sup> into the Composition of Sugar. Indeed Quick Lime is employed for the Coarse as well as the fine Sugar & it is not so intirely seperated from the former as the latter. The fine Sugar should be preferred to the Coarse on all Accounts. The fine possesses all the good Qualities of the Sugar & none of the bad.

The Vegetables preserved with Sugar have ~~all~~ the same Qualities with the Sugar itself & no other except the acid Substances as Ginger



Elicampane &c. which retain some of their original Qualities. In general insipid Substances or such as are rendered so by boiling are preserved by Sugar.

Vinegar Preserves have the same Qualities with the Vinegar itself. They are rendered very difficult of Digestion & are therefore highly improper for Persons of a weak Stomach. Dr. Cadogan inveighs much against them but tho' they may be very hurtful in the Disorders he treats of, the Gout & in all Cases of a weak Stomach, they are <sup>a</sup>very proper Condiment to accompany Animal Food, when a Person is in Health.

We have now finished the Consideration of Vegetable Food & are to proceed of Animal Food, which shall be the Subject of our Lecture, Gentlemen to Morrow at the usual Hour.



## Lecture 7th

Animal Food differs from Vegetables in many essential Points—

- 1 As it is already of an Animal Nature, it requires only Solution & Mixture to be converted into our Fluids, whereas the Vegetable stands in Need also of Assimilation.
- 2 As it is more easy of Digestion it does not remain so long in the Stomach.
- 3 It is more Nourishing &
- 4 It disposes to Inflammatory & Putrid Diatheses. The consequences of a too free Use of Animal Food are all kinds of Putrid Diseases, as Putrid Fevers, Scurvy Dysentery &c. Animal Food is more stimulating than Vegetables; hence the Fever attending Digestion is more considerable after a full Meal of Animal Food than of Vegetable. Animal Food also gives a richer & denser Blood. On these Acc<sup>ts</sup> it should be avoided in all Inflammatory Fevers, Apoplexies & by Persons who are subject to Hemorrhages



Hæmorrhages particularly from the Lungs. Young Persons especially Children should use Animal Food very sparingly & live principally upon Vegetable Food. Animal Food like every other Stimulant proves injurious by wearing out the Tone of the Stomach. Persons likewise who are employed chiefly in Mental Exercises ought to live more upon Vegetable than Animal Food.

The Solubility of Animal Food differs according to the Age of the Animal. The Flesh of full grown Animals is more soluble than that of young Animals - thus Beef is more soluble than Veal, Mutton than Lamb &c. By full grown I mean the most perfect state, when the Animal has acquired its full Growth, both in Size and Circumference, not when grown old, for the Muscular Fibres become rigid & tendinous & the Flesh of old Animals is therefore very insoluble - Animal Food is more soluble according to its Alkalescency & hence Venison & all kind of Game are of easy Digestion. - Animals as they become older are more alkaliescent & on this Account the flesh of young Animals is more insoluble.



luble than that of old ones. Solubility also  
 differs according to Viscosity. The more viscid  
 & glutinous Food is, the more difficult of Solution  
 it is - of this Truth Turtle is an Instance. This  
 is one of the most viscid Substances & would  
 scarcely be conquered by our digestive Organs  
 were it not for the Method of dressing it. It  
 is mixed with great Quantities of hot Spices  
 which stimulate the Stomach & excite it into  
 Action by which it is enabled to digest this  
 Food. The Flesh of young Animals is more glute-  
 nous than that of old. In young Animals the  
 Glands are larger & more numerous than in  
 the old & their Bodies abound more with Mucus  
 & Gluten. In young Animals the Muscular  
 Fibres are more compact with little or no  
 Cellular Membrane interspersed between  
 them & on this Account also young Animals  
 are less soluble than the older in which the  
 Muscular Fibres are separated by Cellular  
 Membrane & Fat. On this Account also the  
 lean of fat Meat is easy of Digestion while



the Lean of poor Meat is of the most difficult Digestion - Meat is more preferable according to greater or lesser Alkalescency & according to its Viscidity - That Meat is most <sup>aspi</sup> preferable - which is most glutinous - hence Mutton & Venison which are most Alkalescent are most <sup>aspi</sup> ~~preferable~~ <sup>or</sup> perspirable - Oysters & Fish from their Viscidity & little Alkalenscency are least perspirable. From these Qualities we see that Oysters & Fish are very difficult of Digestion, They overload the Stomach & increase the Fever that attends Digestion. They remain longer in the Stomach & hence may prove very nourishing but then they should be used only by such Persons as are capable of digesting them such as work hard or use a great deal of Exercise. Persons living near the Sea & living principally on Oysters & Fish are very Robust. They are liable to Eruptions on the Skin, Scurvy & Dysenteries & other Disorders of a Putrid Tendency -

We have by Nature an Aversion from living on Fish for any length of Time. This we observe



in the Salmon Fishery. The Servants employed in it make an Agreement with their Masters that they are not to live upon Fish more than two Days in the Week tho' the Salmon is one of the most delicious & savory Fishes. Solubility differs likewise according to the Manner <sup>in which</sup> the Meat is dressed. Meat by much boiling or roasting is rendered ~~more~~ firmer & less Alkaliescent & of consequence less soluble. That Meat by boiling is rendered less Alkaliescent is evident from the Practice in the West Indies & even this Country. In Summer when Meat has a Tendency to Putrefaction we par-boil it by which it will keep sweet a much longer Time than it would otherwise do. In the West Indies this Practice is called *Jirking*.

The next Subject we are to treat of is Milk. This is of an intermediate Nature between Animals & Vegetables. As it is of so much Importance in both Medicine & Diet it deserves



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a particular Attention. We shall first treat of  
its Secretion.

In all Viviparous Animals both Male & Female there are certain glandular Substances called Mammæ or Breasts by which the Milk is secreted. They are the softest & least resisting of any Glands of the Body. They are placed but side of the Ribs free from all Compression being covered only with a smooth ~~skin~~ thin, soft Skin. These differ from all other Glands in this Respect, that the latter secret their Fluids different Fluids at all Times while the former secret only at a particular Time. The Cause of their secreting only at particular Times has afforded great Matter for Dispute amongst Physicians. It appears plainly that there is a great Consent between the Uterus & the Mammæ, thus the Breasts swell & become painful at ~~times~~ the Time of the Menstrual Flux. This Consent must be owing to the Communication of Blood Vessels particularly to an Anastomosis between



The Epigastric Artery & the Arteries which go  
 to the Mammae. Whenever the Epigastric  
 Artery is compressed the Blood is determined  
 to the Mammae. Bartholine tells us of a  
 Youth afflicted with a Hernia whose near  
 Pap always began to swell when <sup>the Tumor</sup> which sup-  
 ported the Puncture was tightened by  
 which the Epigastric Artery was compressed.  
 During Gestation when the Epigastric Ar-  
 tery is compressed by the gravid Uterus the  
 Breasts swell. After Birth when that Arte-  
 ry is freed from Compression the swelling  
 of the Breasts subsides from the new Deter-  
 mination which takes place. They swell re-  
 markably after Birth upon the cessation  
 of the Lochia when the fluids are determi-  
 ned from the Uterus to the Breasts.  
 From this new Determination it is that  
 we may understand why in infants a few  
 Days after Birth there is sometimes Milk  
 secreted. After the Umbilical Cord is  
 tied the Blood which formerly passed



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that Way runs into a new Channel. This new  
Passage is productive of such an ~~influence~~ im-  
petus as to produce a discharge of blood from  
the Uterus of Infants. Instances you will see  
in the Transactions of the Royal Academy  
of Sciences at Paris. From what has been  
said we are led to ascribe the Secretion of  
Milk to a derivation of blood from the Epi-  
gastric Artery to the breasts entirely inde-  
pendant of plethora. All Women at Child-  
birth are not Plethoric & yet they secrete milk  
plentifully. The Milk begins to be secreted  
immediately after Birth tho' a great deal  
of Blood has been lost at that Time.  
Nay there are Instances of Women loosing  
several lbs of blood on account of disea-  
ses besides the blood which they had lost  
in Delivery & yet milk was secreted plen-  
tifully. It is even said that some women  
have suffered a Diminution of 16 lbs of  
their Weight in 6 Weeks Time & yet gave



Milk sufficient to nourish their Child.  
 Tho' the Secretion of milk depends upon the  
 Derivation of the blood to the Mamma  
 it is considerably increased by Secretion  
 nay there are Instances of a flow of Milk  
 being brought on by Suction in Virgins &  
 even in Men. Such instances occur in  
 Haller Russell & De Graaf. After a flow  
 of milk has been brought on if the Child  
 is not applied to the breasts or if they are  
 not sucked the milk will be lost. The  
 Child should be applied early to the breast  
 on this account & when this is done the  
 Ducti Lactiferi are stimulated & the  
 fluids are discharged by which Obstruc-  
 tion & Stagnation in the finer vessels  
 are prevented which often occasion  
 Schirri & other Disorders of the Breasts.  
 In the Lyingin Hospital at London  
 since the Physicians have obliged the  
 Women to give their Children within



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24 hours after Delivery not above 2 out of  
1000 have been afflicted with Disorders of  
the Breasts whereas formerly when the  
Child was not applied to the breast for 3,  
4 or five Days after Delivery their Com-  
plaints were very frequent.

Milk consists of three parts.

1. The oily part or Cream. This in a great  
measure resembles the vegetable expressed  
Oils & seems to be derived from them.
2. The coagulable part which is of an ani-  
mal Nature & greatly resembles the whites  
of Eggs.

3. Water in which some saline or saccha-  
rine Matters are dissolved These 3 Sub-  
stances may be procured separately in  
the form of Butter, Cheese & Whey. —

Milk has commonly been supposed to be taken up  
into the Lacteals without suffering any Decomposition  
This Notion is erroneous, it is decomposed in the  
Stomach coagulated, fermented & afterwards taken



up by the Lacteals & mixed with the Blood.

† As Milk is an intermediate Nature between Animal & Vegetables, it is particularly calculated for the Nourishment of our Bodies. It is particularly proper for the Nourishment of Children & we find it is furnished by Nature for them as soon as they are born. For a Person in an *Effetic* Fever it is particularly adapted. Milk has the good Qualities of both Animal & Vegetable Food & is exempt from any of the Inconveniences that attend the Use of either. Thus it is not subject to the Vinous fermentation & hence is not liable to produce Flatulencies &c. which arise from Vegetables. It is likewise not attended with the <sup>Fever</sup> Stimulus of Animal Food. It is hurtful to those only who have a strong Acid in the Stomach for in these the Coagulum or Curd that is formed is so hard ~~that~~ as to be incapable of Digestion. Milk may also be hurtful to Persons recovering from Intermittents as it tends to cause Refrigeration by its Agency. —



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Asses, Mares & Human Milk are not so <sup>ascent</sup> nor so easy coagulated as the Milk of the Cow, Goat & Sheep & form a more ~~suitable~~ soluble Coagulum. The former <sup>do not</sup> contain ~~so~~ so much Oil & coagulable Part & are very proper for Persons without Fever whilst the latter from their <sup>ascency</sup> are better calculated for Persons with Fever - These last may be coagulated by Acids & different Coagula hence are not so proper in weak Stomachs. The Milk of the Cow & often Goat contain nearly the same Quantity of Cream, Coagulable part & Whey. That of the Sheep contains less Whey & Coagulum than the other - Human & Asses Milk have been preferred to the others in some Disorders. It may not be amiss to inquire here into the Cause of this Preference & the Foundation of it. Asses Milk is not so <sup>ascent</sup> as Cow's & cannot be coagulated by the various Coagula or Rennets - By Rest or Stagnation it <sup>separates</sup> ~~appears~~



spontaneously into several Parts. The coagulable part falls to the Bottom. The Cream rises to the Top & the Serum occupies the middle Part. It contains a large Quantity of Whey & very little Cream or Cheese. It is even said that no Butter can be obtained from Asses Milk. Mares Milk is very similar to that of Asses. contain still less Oil.

Human Milk is not coagulated by the Rennets commonly employed for coagulating Milk. even the strongest Acids will not coagulate; neither can this Effect be produced by boiling it, but if it is placed at Rest in a heat of  $96^{\circ}$ , this Separation will take place of itself. This Separation takes place in the Stomach as appears when Infants throw up their Milk by Vomiting. From all this we see that the Distinction is founded in Reason. When the Stomach is so weak as to resist Cows Milk it will sometimes bear Asses or Human Milk & we accordingly have Instances



ces of Persons who were snatched from the Jaws  
 of Death by sucking a healthy Nurse. Human  
 Milk differs very much in different Women.  
 In some it is white & thick, in others diluted  
 & thin with little Cream. The Milk of Nurses  
 is very little affected by their Food much less  
 than that of ruminating Animals. It is doubt-  
 ful whether Purgatives given to the Nurse will  
 affect the Child. Nurses laboring under Disca-  
 ses very often give good Milk. There are Instances  
 of Nurses who are affected with Venereal Disease  
 while the Children who sucked them <sup>continued</sup> remained  
 free from it & I have known two Instances of  
 Nurses having taken Mercury until their  
 Mouths were sore, whilst the Children were  
 not in the least affected; nor will their Milk  
 change Silver black or Gold White as we know  
 the Perspiration of People taking Mercury  
 will do. This strongly confirms an Opinion former-  
 ly advanced that the State of the secreted Fluids



Depend more upon the secretory Organs than the State of the Fluids from which they are secreted. The Passions of the Mind have a considerable Influence upon the Milk & there are Instances of a sudden Fit of Passion producing such a change in the Milk that the Children sucking the Nurse have been thrown into violent Convulsions & Death has ensued when the Milk has not been thrown up. In these Cases the sudden Change produced must be owing to an Alteration made in the Breasts or other Organs of Secretion, it also occurs in the Organ of Digestion. Thus sudden Insults or unexpected Tidings affect Digestion & will suddenly render every Thing contained in the Stomach vitiated & corrupted. We are next to speak of the part <sup>from</sup> which Milk is secreted. There have been very different Opinions on this Head. Some assert that Milk is secreted from the Blood whilst others think it is intirely derived from the Chyle. It is very



difficult to determine the Point as we do not  
 know the true Analysis of Chyle nor how  
 much enters the Blood in a given Time nor how  
 long before it is converted into Blood. The Ad-  
 vocates for the latter Opinion assert that it is  
 very <sup>im</sup>probable that such large Quantities of  
 Milk as are secreted in one Day (there being  
 Instances of some Woman that have given  
 6 Quarts in 24 Hours & some Cows give 24  
 Quarts in that Time) should be derived im-  
 mediately from the Blood. They likewise  
 show that Milk & Blood are of a very different  
 Nature: Milk resolved into a Coagulate Part  
 Cream & Whey. It is acescent & Blood is putres-  
 cent. There seems to be some Truth in the  
 latter Argument. The former is not at all conclu-  
 sive because as I have said above we know not the  
 exact Quantity of Chyle that enters into the Blood  
 in a given Time nor how long it is before conver-  
 ted into Blood. The Opinion of Milk immediately  
 derived from the Chyle is further confirmed



from Dr. Youngs Experiment of a Bitch - whose Milk he found to be alkalescent when he fed her upon Animal Food but on the contrary when she lived upon Vegetables.

Milk by boiling is rendered acescent & consequently less laxative - it should be used when new rather when long drawn so that it has had Time to separate. The Milk of ruminating Animals is more difficult of Digestion than Human Ases or Mares Milk, it contains more Oil is more acescent & partakes of the Nature of Vegetables. It is therefore very serviceable in all Cases of Putrid & Inflammatory Diatheses. In these Cases Butter Milk seems to be rather better as it contains less Oil & is more acescent cooling & laxative - The properties of Whey are nearly the same with those of the Butter Milk & may be employed in the same Cases. This is excellently calculated to produce a  
change



Change in the State of the Humors & will often be serviceable when the pure Milk will be improper. Milk is very excellent in for Persons recovering from Inflammatory Fevers. Milk is very serviceable in Hectic Fevers & Consumptions. In these Cases Human & Asses Milk have been preferred. Persons in these Cases should not be restricted to any Quantity but should take as much as the Stomach will bear. Riverius & Hoffman give us Instances of Persons rescued from Death by this Practice. Rennet Whey is likewise very serviceable in these Complaints & in internal Ulcerations of all Kinds. This will often be retained when Milk is rejected. A Milk Diet has been recommended in the Gout ~~and~~ it is accompanied with Inflammatory Symptoms, but in old People who are generally afflicted with this Disorder. The Nervous System is generally weak & requires something more Stimulating than Milk. It is not safe



to mitigate the Inflammatory Symptoms by  
 + Evacuations of any Kind. Though some have  
 found Relief from a Milk Diet it is not al-  
 ways safe to adhere to it in all Cases after  
 the Stomach has been used to stimulating  
 Food. A Milk Diet will indeed prevent the  
 Appearance of the Gout in an Inflammatory  
 Form in the Extremities, but then other  
 Disorders will be produced as fatal in  
 their Consequences if not more so than the  
 Gout. Old Persons should have a considerable  
 Degree of Vigour remaining if they expect  
 to be relieved of the Gout by a Milk Diet  
 or indeed by any Medicine whatever. In  
 young People there is nothing to forbid  
 the Use of Milk in this Disorder & it is  
 particularly proper to correct an Infla-  
 matory Diathesis. In these accompanied  
 with a proper Use of Exercise & abstinence  
 from Wine & Venery a Milk Diet will be  
 productive of very happy Effects. —



If you recollect what I said on the Survey you will easily see that Milk is very useful in disease especially Cows & Goats Milk & more particularly Whey & Buttermilk.

Milk is very serviceable where Poison has been inadvertently swallowed. There is no Remedy better calculated for Emergencies of this kind. It involves & obtunds the Acrimony of the Poison & by its demulcent Effects guards against the Spasms of the Stomach. Hoffman tells us of 10 boys who had taken Arsenic mixed in an Eaten Cake for the destroying of Vermin who were all cured by drinking plentifully of warm Milk. It defends the tender Coat of the Stomach & Guts from the Acrimony of the poison & serves as a very good Vehicle to carry it off. There is likewise this Advantage in Milk that when Children have swallowed Poison we can more easily persuade them to drink a larger quantity of it than of Sweet Oil or warm Water. Persons who have swallowed Poison should live for some Time after they have been



freed from any immediate Danger upon a milk diet & take now & then a Dose of Castor Oil for there are Instances of persons dying from Poison being swallowed a considerable Time after they were thought to be quite out of Danger.

Milk is very useful in Disorders of the Bowels as Diarrhoeas & Dysentery which are often mitigated & sometimes cured by the use of it after more potent Remedies have failed. In these Disorders the natural mucus of the Intestines is abraded & the milk by its demulcent & glutinous Quality supplies its place. By boiling Milk is rendered more glutinous & consequently is then better adapted for these Diseases. To render the milk more glutinous various Substances have been added. A Woman near Germantown acquired great fame for a supposed Specific she possessed for a Flux Upon Inquiry



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Inquiry into the Matter Round her Seat  
consisted in boiling a Sheet or two of white Pa-  
per in Milk. Another Domestic Medicine is  
a decoction of Mutton Suet boiled in a pint of milk  
& drank at once at bed Time & occasionally  
repeated. This I have used with singularly  
good Effects. All these Preparations act by  
their demulcent & oily Qualities depending  
the Guts & supplying the place of the natu-  
ral Mucus. Marsh Mallow Comfrey Root  
Sago or Salep or if the Composition is to be  
more medical Gum Tragacantha or Gum  
Arabic boiled in milk will produce equally  
good Effects. —

Milk is particularly proper for producing  
a change in the Humors when we wish to  
extirpate a constitutional Disease in which  
the fluids & Solids are affected. Milk has  
been recommended in Cancerous & Nephro-  
lous Diseases. In these there is generally a  
vitiated state of the humors & a change in the



humors I have told you already is only to  
 be brought about gradually & more by diet  
 than any thing else. Milk is better adapted  
 for this purpose than any other sub-  
 stance we can employ. Sydenham tells us  
 that he relieved a Person of a cancerous  
 Tumor in the Neck of the Uterus which  
 had been there a considerable Time by a  
 Milk diet alone. When a Cancer is ulce-  
 rated a sanious ichorous Matter is dis-  
 charged which causes great pain to the  
 Patient. This Discharge is increased by  
 every Thing that is stimulating & is con-  
 sidered much milder by a Milk Diet.  
 Milk is also of the utmost utility in  
 Venereal Complaints. Hoffman tells  
 us of a military Gentleman who has  
 been for a long time afflicted with  
 the Venereal Disease & was at last  
 cured by a diet of Asses Milk without  
 any other Remedy. The late Dr. Monro  
 likewise gives us the cases of two



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young Gentlemen who were afflicted with  
Venereal Ulcers for which they had taken a  
Variety of Medicines & had been repeatedly  
falsely treated. The ulcers however continued  
to increase both in Breadth & Depth. The  
Doctor at length advised them to go into  
the Country & live solely upon a milk  
Diet. They followed his Advice & in about  
six weeks time were perfectly cured.

From hence we see that Milk deserves the  
most important Consideration. It is fur-  
nished by Nature for all young animals  
& is particularly fitted for their nourishment.  
It claims the first place in Diabetic Re-  
gimen.

We have now finished the Considerati-  
on of the Nutrientia. We shall just briefly  
recapitulate what we have said on this  
head in the preceding Lectures.

We began with observing that all our Aliment  
was either of an animal or vegetable nature



I we asserted that Man was destined to live  
 upon both. This we proved from the structure  
 of his Teeth & Intestines. I found it strongly  
 confirmed from the Advantages of a  
 mixed Diet & the Disadvantages of either  
 separately. We in the next place considered  
 Digestion in which we found the Saliva  
 Liquor Gastricus, Bile & Pancreatic Juice  
 were of considerable Service. We then  
 took notice of some Hypotheses conceiv-  
 ing this Process & found that some as-  
 cribed it to a Solvent which others sup-  
 posed it to be owing entirely to Mecha-  
 nical Force who considering the sto-  
 mach as a muscular Organ & com-  
 puting the force of lesser muscles from  
 thence supposed the force of the sto-  
 mach to be more than sufficient to  
 grind any aliment received into it.  
 Mr Raumer's Experiments showed us  
 that neither of these were entirely right  
 tho' perhaps neither were entirely wrong.  
 We



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We made it appear that Digestion is at least completed in the human Stomach by Fermentation of which there are 3 kinds. viz. Vinous, Acidous & Putrefactive which were prevented from going too far by the Liquors above mentioned but principally by the Bile which we found acted by its bitterness & that this was neither alkaline nor putrescent. We found that Vegetables were nourishing according to the proportion of Sugar & Oil they contained & they are more easy of digestion & less noxious in proportion as these parts are more intimately blended hence Grain in which these are intimately blended is very wholesome while Nuts in which these are not properly united are difficult of Digestion & apt to prove flatulent.

We also observed that a Vegetable Diet is improper for a Person troubled with Flatulences, Acidity Indigestion & Costiveness arising from this last Cause



and such Persons as are troubled with Hysterics & Hypochondriac Diseases; that it produces Heart~~burn~~ Colic, Diarrhoea & Cholera Morbus that it <sup>is</sup> very useful wherever there is an Inflammatory or Putrid Diathesis; that in these last Cases Animal Food is highly improper, but that it is useful wherever there is a prevailing Acid. That Animal Food is more soluble than Vegetable & that it is more soluble in proportion to its Alkalescency and less degree of Viscosity. We also found that Meat that is over done is less soluble than that which is rarely done. Tho' some Persons have lately asserted that Meat is more soluble in proportion as it is done. This at least appeared to be the Case in the Person on whom D<sup>r</sup> Stephens made his Experiments which are enumerated above.

We also treated of Condiments & found that the Aromata were very improper to accompany Animal Food but were very useful with Vegetables & therefore they grow



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in warm Climates; that the Cress kind and  
Alliaria were the best for Animal Food;  
that Salt was the most grateful Condiment;  
that it excited Appetite & when pure resisted  
Putrefaction; that Sugar is Antiseptic  
nourishing & destroying Worms, that Vinegar  
resists Putrescence, corrects the Inflammatory  
Diathesis & assists Digestion.

We also spoke of Drinks & found that  
they were of Use to supply Fluid to the System  
& facilitate Digestion; that when taken in  
moderate Quantities they assisted Digestion  
& assisted Nutrition; but that taken in large  
Quantities they hindered Nutrition.

We also observed that a liveliness of Imagination, Delicacy of Feeling, Quickness of Apprehension, Strength of Judgment &c more remarkably accompanied a weak than a Robust Habit of Body. Studious Persons and those who prefer the Strength of the Mind to that of the Body should live principally upon a Vegetable Diet. Thus we have finished the Nutrientia



Lecture 8<sup>th</sup>

The next Class we are to consider are the  
Astringentia.

By this Term we mean such Substances as have a Power of Approximating the Fibres of the Body & increasing their Cohesion. They will exert their Effects not only on the living Body but also after Death. Thus Oakbark which is a very powerful Astringent is employed in tanning to render the Hides of Animals dense, strong & firm. This Property is not peculiar to the Oakbark but is common to all Astringents. The Number of Astringents is very great. They are obtained from the Mineral & Vegetable Kingdoms. They are discoverable by the following Signs. Upon tasting them the parts are very much contracted & corroged, the palate feels a disagreeable Roughness & the Lips become palid. The Vegetable Astringents likewise strike a black Color Ink upon mixed with any Preparations of Iron—

Hoffman



Hoffman speaking of the Use of Astringents says. "If the Administration of any Medicine requires great Caution it is that of Astringents for when given unseasonably they produce the worst of Consequences". Thus by the improper Use of Astringents we find hectic Fevers - Cachexies, Adematous Swellings, Colics and Spasmodic Affections of different Kinds produced.

Synonymous to Astringentia are the Terms Roborantia, Constringentia, Aretantia Consolidantia Stiptica which regard the Solids. With Regard to the Fluids are the Coagulantia, Condensantia, Incrassantia &c.

With Regard to the Operation of Astringents some suppose they act wholly on the simple Fibres, which others imagine they act on the Nerves of the Stomach, & by means of them extend their Effects over the System. Those who <sup>favor</sup> ~~suppose~~ the first Opinion suppose the Astringents taken up <sup>with</sup> ~~in~~ the Blood & by Means of the Circulation conveyed to the different parts of the Body where it will exert its Effects. But



if we consider that if this was the Case, it would take some Time before the Medicine could produce its Effects in the different parts whereas when Astringents are given internally for checking Haemorrhages of different parts e.g. of the Uterus, we find the Effect produced almost as soon as the Medicine is arrived in the Stomach. This single Consideration is sufficient to show us that this Opinion is not well founded. There are however other Arguments which tend to show this. Thus if the Astringent was distributed thro' the whole Mass of Blood a very little of it would arrive at a particular part, therefore to produce any considerable Effects we must give it in large Quantities. We find on the contrary that small Doses will in a short Time produce very considerable Effects - also if some particular Astringents were without undergoing any Change mixed with the Mass of Blood they would cause a Coagulation of the whole



Mass which we know would inevitably occasion the Death of the Animal. From these Arguments we find that Astringents cannot exert their Effects by Means of the Circulation & hence we are led to adopt the other Opinion, viz<sup>t</sup> that Astringents act solely upon the moving Fibres by Means of the Nerves of the Stomach. It is true Astringents will act on the dead Body but they affect only the Fibres with which they immediately are in Contact whereas in the living Body they extend their Effects over the whole System - this they undoubtedly do by acting on the Nervous System.

Astringents are employed internally & externally to check Hemorrhages. With regard to the internal Exhibitions of Astringents in Hemorrhages it will be necessary to attend to the following Rules. - If a Hemorrhage arises from a Suppression of some natural Evacuation even in some unusual Place it ought not to be suppressed until <sup>the natural Evacuation is restored.</sup> ~~we have brought on a flow of~~ Thus if from the Suppression of



The Menses an Ulcer is formed in any Part from which Blood issues periodically it is not to be suppressed untill we have brought on a Flow of the Menses. After the Humors have been brought into their proper Channel small Doses of weak Astringents may be given.

Any Hemorrhage becomes Habitual indeed any unusual Hemorrhage whatever ought not suddenly to be suppressed. We should first use bleeding & the Antiphlogistic Regimen in Order to give a new Determination to the Humors, if those fail small Doses of weak Astringents may be applied. In Cases of Hemorrhage there is generally a relaxed State of the Intestines producing Costiveness. This is apt to be increased by the Use of Astringents, we should therefore combine gentle Laxatives with our Astringents. Where<sup>as</sup> Hemorrhage is so violent as to threaten the Life of the Patient we should have immediate Recourse to Astringents without having any Attention to the Inconveniencies arising from their



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their Exhibition. In this Case we should use the most powerful Fossil Astringents. If the Patient is Plethoric of a strong Robust Habit of Body Bleeding will be very necessary as Haemorrhages in such Persons are generally attended with Febrile Symptoms - If this is not the Case & Haemorrhage is owing to Relaxation as is often the Case after Amputation, Bleeding will only increase the Relaxation & will render the Haemorrhage greater. In this Case we should trust to Astringents alone. Doctor Monro's Observations on this Head are very good. It may be of some Service to you to know that recent Haemorrhages may be suppressed with more safety than those which have continued a long Time. No Haemorrhage ought to be intirely suppressed until the Cause producing it is removed.

In Haemoptoe the Use of Astringents is doubtful. If the Discharge is checked suddenly the Blood is accumulated in the Lungs & Suppuration & a Pthisis Pulmonalis is often produced. Astringents should not be given during the



Paroxysm but may be employed after it in small Doses. Critical Hemorrhages should not be suddenly stopped unless they threaten the Life of the Patient which is seldom the Case.

Astringents are likewise used externally for the checking of Hemorrhages. Here they may act in two Ways - by contracting the Solids or by coagulating the Fluids with which they immediately come in Contact. They are however of no Service in this Way. If only small Vessels are injured dry Lint & Pressure will more effectually stop the hemorrhages. If a large Vessel is wounded a Ligature will check the Hemorrhage soon & will be safer.

Astringents are also employed in Ulcers. It has commonly been supposed that there were Medicines that will supply Flesh when lost hence called sarcotics. This we now know to have no Foundation. The only Medicine which tend to produce a Cure of



Ulcers are those which conduce to the formation  
 of Pus - Ulcers often heal with Difficulty from  
 the Laxity of the Parts. Astringents by increasing  
 the Strength & Elasticity of the Fibres will tend  
 to bring on that Degree of Inflammation which  
 is necessary for the formation of good Pus.  
 The Use of Peruvian Bark is too well known  
 to be doubted. It certainly acts by Astringent  
 Qualities & Astringents of other Kinds may  
 have the same Effects. Astringents are also em-  
 ployed in Gangrenes. They not only prevent  
 Putrescency but also cure it after it has taken  
 Place. It has also been proposed to inject As-  
 tringents into the Abdomen for the Cure of  
 Dropsies. The Water may be all drawn off  
 by the Operation of the Paracenteses & it was  
 thought that Astringents might then be injec-  
 ted into the Abdomen & by strengthening the  
 Parts prevent a Return of the Disorder. This  
 Practice is now deservedly rejected. From  
 Dissection it appears that the most frequent



Cause of Dropsies are Obstructions of the Liver & other Viscera & it cannot be cured unless the Obstructions are removed. Astringents would rather tend to increase than remove these Obstructions. If Dropsies were in general owing to <sup>a</sup> Laxity of the whole System which however is not ~~the~~ the case it would be in vain to strengthen the Vessels of any particular part without restoring Tone to the whole System. Astringents are hurtful in the Hydrops Pectoris & in all encysted Dropsies They may be of Service in Anasarca by strengthening the Relaxed & weakened Habit of Body if Friction & moderate Exercise be at the same Time applied.

Astringents are likewise employed in Diarrheas & Dysenteries. These two Disorders are generally confounded; they are however different tho' it is difficult to distinguish them as there is scarcely one  
Symptom



Symptom of either which does not at Times accompany the other. A Diarrhœa as I told you when speaking of Fruits arises from Refrigeration. In it the Stools are liquid frequent & of the natural Color. It is also accompanied with gripings & Borborismi. A Dysentery is occasioned by putrid Exhalations & this is perhaps the principal Thing which will enable us to discriminate between the two Disorders. In this the Stools are frequent but not so copious as in a Diarrhœa & are slimy & frothy & accompanied with <sup>smells</sup> ~~Tenesmus~~. A Dysentery according to the best Authors is attended with Fever. Astringents should not be given in Dysenteries untill the Prima Viæ are first evacuated. For this purpose we should employ such Substances as have some Degree of Astringition Rhubarb & Ipecacuanha are generally employed. After the morbid Matter has been evacuated a Discharge is frequently kept up from Laxity. In this Case we may safely use Astringents & the Peruvian Bark is one of the best we can employ.

Astringents have likewise been recommended in Evacuations of Mucus as Gonorrhœa & ~~Fluor~~ Fluor Albus. —



In the first Stage of a Gonorrhoea where there is an Ardor Urinae, Inflammation of the Urethra & Chordee, Bleeding & the Antiphlogis, the Regimen are certainly to be employed, tho' even here some use Injections of Sacch: Saturni which as we shall see hereafter is one of the strongest Astringents, but this Practice appears to be highly improper. When the Inflammation is somewhat abated we may use Astringents sparingly; when the Inflammation is quite gone off if the Running still continues we may use Astringents with Safety. It will be best to give them internally & if this is not sufficient they may be employed externally when Balsamics & Demulcents will not effect a Cure.

The Fluor Albus is a Disease which seldom afflicts young Women, but most commonly in Women advanced in Life who have born several Children & proves a frequent Cause of Barrenness. If it has continued for any Length of Time we must observe the Rule laid down for the Exhibition of Astringents in



Hæmorrhages. We should make ourselves particularly acquainted with the Cause of this Disease. If the Cause is owing to Tumors & Ulcerations of the Uterus Astringents will be highly improper. In this Case we must employ such Remedies as have a Tendency to resolve such Tumors. Of this the Cicuta is the principal. This with gentle Laxatives will often produce a Cure. When the Discharge depends intirely upon Laxity & Debility of the Uterus, Astringents become highly useful.

Astringents are often employed to excite Secretions & Evacuations. This may at first appear rather unaccountable, but if we consider that the Suppression of different Evacuations is often owing to a weakness & Relaxation of the Part we will easily see how Astringents by restoring Strength & Tone to the Part will also restore the Evacuation. In this Manner Astringents prove serviceable in the Chlorosis & Costiveness arising from a weakened



ned Peristaltic Motion of the Intestines.

Astringents are likewise recommended in the Stone or Gravel. They mitigate the pain attending these Complaints & sometimes intirely cure them. We have such well attested Facts in Proof of their Use in these Complaints that we can have no Doubt of it. Van Swieten & De Haen assure us that the Uva Ursi, which we shall find to be one of the strongest Vegetable Astringents mitigates & sometimes cures the Pains arising from the Pain Stone whilst the Stone itself is not altered either in Size or Shape as appears from the catheter Kucher asserts that all the most famous Lithontriptic Medicines ever in use were either Astringents or acted as such. This we shall consider more fully when we come to treat of the Virtues of Lime Water & the Uva Ursi.

The Use of Astringents in Inflammation is doubtful. The proximate Cause of Inflammation is an increased action of the



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the Vessels of the Part affected. This may be brought on by various Causes, Thickness & Stagnation of the Blood which may be brought on by ~~various Causes~~ too great Straitness of the Vessels or by a Laxity of the Vessels & External Stimuli where there is too great an action of the Vessels as in the young & strong. Bleeding & the Antiphlogistic Method are most proper. In the old & infirm Inflammation is generally brought on by a Laxity of the Vessels. In this case Bleeding is improper & Astringents should be employed. In the young Inflammation generally terminates in Suppuration in the old in Gangrene in both which cases we have seen Astringents employed.

We are now to speak

Of particular Astringents.

These are either Fossil or Vegetable. The



Fossil are divided into the Earthy Saline & Metallic. The Earthy are subdivided into Boles Clays & Absorbent Earths.

Boles are of little consequence in Medicine & might perhaps be entirely rejected for as they are insoluble in Acids & the fluids of our system no Effects can be expected from them. They have been said to act as Astringents as they contain Iron or Alum but if we want to employ these Substances we should employ such preparations of them as will enable us to ascertain the Dose with more certainty than we can in the Boles. If they exert any Effects in our System they are I believe bad ones. They have indeed been accused & perhaps with propriety of lodging in the Pica of the Stomach & Intestines & there forming or serving as a Nucleus for the formation of Calculous



Concretions. They may be employed externally to dry up excessive Serous Discharges by the Skin, but here any dry powder will answer equally well.

Clays or Argillaceous Earths are distinguished from Absorbent Earths by their not effervescing with Acids. They are now never employed in Medicine as they have little or no Effects on our System.

Absorbent Earths effervesce with & neutralize Acids of all kinds & for this reason may be employed when there is an acid in the Stomach. They have been used in Diarrhoeas & Dysenteries. When a Diarrhoea arises from a prevailing acid, which is frequently the case in Children it is discovered by the green color in their Stools. Magnesia Chalk Crabs Eggs or any other absorbent Earth by neutralizing the acid may cure the Disorder. They do not here



by any means act as Astringents. They are much often given with a View of opening the Bowels. As Dr Pingle has found Absorbent Earths to be febrile by destroying the Acid in the Stomach they are highly improper in the Dysentery we however still see them prescribed in this disorder. Thus calcined Hartshorne is added to the Decoction Album of the Pharmacopoeia Pauper of the Edinburgh Infirmary. Chalk has been substituted for the calcined Hartshorne but its Effects in this Case are certainly pernicious. —

We are next to consider the Saline Earths as Astringents; of these the principal & perhaps the only one is Alum. —

This is formed by the combination of the Vitriolic Acid & a particular kind of Clay. The Alum which we have in our Shops is artificially formed of this Clay. Of this we have two Kinds the Roman & the common Alum



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Alum & whatever Diff: there may be with Re-  
gard to their use in Dying there is certainly  
little or none in Medicine. When Alum is  
found natural it is called *Alumen Plu-  
mum*.

Alum is one of the strongest & at the same  
Time safe Astringents. As it is easily soluble  
in the fluids of our body its Effects are soon  
extended over the System. It is of more ge-  
neral use than either the vegetable or me-  
tallie Astringents for its operation is much  
quicker & it acts in smaller Doses than the Ve-  
getable Astringents. And as it has a Sedative  
Quality combined with its Astringency it  
may be employed where the Metallie Ast-  
ringents would by Reason of their Stimulus  
prove hurtful. Alum has been employed  
with Advantage in Inflammations of the  
Eyes more especially when it is owing to  
Relaxation & Debility as in old People. I  
have already shown how Loxity may oc-  
casion Inflammation by causing an Accu-



mutation of blood in the Vessels of the Part.  
 When Inflammation is brought on by Laxity  
 general Bleeding is pernicious but if there  
 is too great a quantity of blood in a part  
 Topical Bleeding by Cupping or Leeches  
 will be necessary to prevent a Rupture  
 of the Vessels. The general Method of ~~employing~~  
 applying it in this case is to rub a piece  
 of it in the white of an Egg untill it be-  
 comes hard & then spread it on a Rag.  
 Alum is very useful in relaxed & Spent  
 Gums in the Scrovy mixed with Sage  
 Tea & Honey to make a Gargle. It may  
 also be used in this way in Anginas  
 arising from Relaxation with good Effects.  
Sydenham in this Case recommends the  
 Vitriolic Acid but Alum will answer  
 as well if not better. —

Alum has been applied externally to dry  
 up Excretions of the Skin as excessive  
 Sweating under the Arm pits but as it



is often improper to dry up such Excretions at all it is evident the use of Alum in this Case must be very pernicious & is often attended with imminent Danger. I once saw a Case where from drying up an evacuation of this kind the Hemorrhoids were thrown upon the bowels & a Chronic Diarrhea brought on which notwithstanding every method was made use of for its Relief it terminated fatally. In violent Hemorrhages Alum is one of the Substances most to be depended upon when given internally. It may also be applied externally. Bleeding at the Nose may be stopped by filling the Nostrils from which the Blood issues completely even tho' it should put the patient to some Pain with a Tent or Lint dipt in the Solution of Alum, at the same time applying a Cloth dipt in cold Vinegar or Water to the Forehead, Crown of the head & back of the Neck. These different Applications are you see intended to cause Refrigeration or to moderate the



Impetus of the Blood. Alum taken internally  
 acts both as a Sedative & Astringent in check-  
 ing Hemorrhages. Helvetius's Preparation  
 of Alum for which he obtained a premium  
 & Pension from Lewis the 14<sup>th</sup> of France  
 is made as every Dispensatory will in-  
 form You by melting Sanguis Draconis  
 over the fire in an Iron Ladle & adding  
 to it as much powdered Alum as it will  
 take up. The Sang. Drac. gives no additi-  
 onal Virtue to the Alum but only  
 serves as a convenient Vehicle to form  
 it into Pills. In the Edinburgh Phar-  
 macopoeia. Ferr. Japon<sup>ica</sup> is substituted  
 for the Sang. Drac. to little Effect as  
 the Alum can receive no additional  
 Virtues from it. The best Method  
 that which I invariably follow is to  
 form it into Boluses with Cons. Ros:  
 from 5 to 10 Grains  $\text{℥ss}$  in a bolus to  
 be repeated every hour or half hour if  
 necessary



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necessary. Doct<sup>r</sup> Thompson in the Medical  
Effays tells us that in violent Hemorrhages  
of the Uterus he has given  $\frac{3}{4}$ ss quaque  
hora. Few Stomachs however can bear such  
Doses without Nausea & even Vomiting &  
as we should endeavor only to moderate &  
not to stop too suddenly Hemorrhages  
small Doses frequently repeated should be  
preferred. A Nausea is so apt to attend the  
use of Alum that it often renders the ex-  
hibition of it very difficult. Dr. Malorina as-  
sures us that if we combine a little Cinabar  
with the Alum it will prevent the Nausea  
However this be there is no doubt but  
Heteroeus's Method which I generally  
pursue is very rational viz. to add Opi-  
um to Alum. This will prevent the  
Nausea & give the Alum Time to exert  
its Astringent Effects. Dr. Grashey assures  
us that Alum is of Service in the Colica  
Pictorum. Dr. Thompson recommends it



in the Ruod Albus. St Cullen advises it to be employed in Diarrhoeas & Dysenteries where he thinks it will act not only by its Astringent but also by its Antiseptic Qualities. It is also said to be serviceable in Intermittent Fevers when combined with Aromatics & taken just before the fit comes on. It is also recommended in continued Fevers. With regard to its use in these Disorders I can say nothing as I never have had Occasion to make Trial of it in those Cases. I am not forward in making Experiments upon my patients tho' if the Medicines usually found to succeed in these Cases should fail I should have no Objection to trying the Alum but even then I should feel very uneasy whilst my Patient was under the Operation of a Doubtful Remedy. —



## Lecture 9<sup>th</sup>

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We are in the next place to enter upon the Consideration of Metallic Astringents. The first of these is  
Copper.

This is a Metal soluble in our fluids & in all Saline Substances. It may be combined with Acids, Alkalis & Neutral Salts. If there is any Difference in the preparations those with Alkalis are the most stimulating with Neutral Salts the mildest & that with muriatic Acid the most powerful Astringent. Copper is a very powerful stimulant & excites Vomiting when taken even in very small Doses. As the Combinations with the Neutral Salts are the mildest we should always prefer them.

Copper has been used with very good Success in Dropsies in which Case by its Stimulus it proves a Diuretic & Purgative at the same Time by its Astringency it gives Tone to the System. It is employed in Hemorrhages but in this Case it is inferior to Alum



or the Preparations of Lead. The Roman Vi-  
 triol is employed Internally to check Hemor-  
 rhages which it does not only by contracting  
 the Solids but also by coagulating the fluids  
 with which it immediately comes in Contact  
 Boyle in Cases of Hemorrhage recommends  
 the Ens Veneris but since his Time Physic-  
 ians have employed more Time in dis-  
 puting concerning the preparation of this  
 Medicine than in making Trials of its  
 Efficacy. Some have asserted that it is  
 a preparation of Iron. Boyle himself tells  
 us it is a preparation of Copper. Indeed no  
 Preparation of Iron can produce the same  
 Effects with the Ens Veneris. There are  
 directions for obtaining it in Crystals in  
 Tom. 1. Act. Nat. Curiosior: This in short  
 this. We dissolve any Quantity of Ro-  
 man Vitriol in Distilled or Rain Wa-  
 ter then filter the Solution & to this fil-  
 tered Solution add Sp. Sal. Ammon:  
 Vol: untill nothing more will preci-  
 pitate



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pitrate, we then pour on highly rectified Sp. Vin: to separate the water which is to be poured off. Elegant small Sapphire colored Crystals will be found which are to be kept after being sufficiently dried in a bottle well secured from the Air. In this we have all the Advantages I never any Mercuric Acid combined with the Copper. This is a very powerful Astringent & Antispasmodic & takes off the Mobility of the Nervous System. Hence it is of Service in Cases of universal Loxity e.g. the Rickets as Mr Boyle observes. It has been used with Success in the Mania & Epilepsy. As an Instance. A Man afflicted with a real Epilepsy was perfectly cured of his Complaint by this Medicine in the Royal Infirmary at Edinburgh. It may be given in those Cases from Grj to Grv made into Boluses with Cons: Colar. It is best to begin with small Doses & increase it gradually.



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Dr Cullen gives this Medicine likewise called  
Cuprum Amm. the preference to all those  
Medicines that have been recommended in  
the Epilepsy. Boyle recommends his Ens Ve-  
neris as an Anodyne & says that it acts with-  
out the inflammatory qualities & Riolism of  
Opium. If we consider the properties of  
Copper we will find it difficult to assent  
to this Assertion & Experience does not con-  
firm it. We may here observe what fal-  
lacies even great Men are liable to fall  
into. The Ens Veneris in some particular  
cases by acting as an Antispasmodic  
might prove anodyne but on this acct.  
to prefer it to Opium would be highly  
absurd. Boyle likewise recommends it  
in Petechial Fevers accompanied with  
subcutis Tendinum & says it is particu-  
larly useful in taking off the Nervous  
Symptoms. In this case also its Effects  
are doubtful & I would never employ  
it unless the Medicines generally found



to succeed in these Diseases should fail I <sup>191</sup> then  
would employ it with Reluctance.

All the preparations of Copper applied  
to worms out of the body instantly destroy  
them & there is no doubt but they would pro-  
duce the same Effects within the body if  
they could be retained in sufficient quanti-  
ties on the Stomach. A single drop of a So-  
lution of Copper in the Vol. Alk. vomited  
a child to whom it was given. The Cupr.  
Ammon. is more likely to succeed than any  
other Preparation. The Roman Vitriol has  
of late been employed in the London  
Hospitals for the Cure of Intermittents  
& frequently with good Success. The Dose is  
from  $\mathcal{G}ss$  to  $\mathcal{G}ij$ .

Copper is employed in Germany to prevent the  
Hydrophobia consequent upon the bite of a  
mad dog. The Dose is  $\mathcal{Z}ss$  of Copper filings throw-  
ed upon buttered bread. An experienced  
Physician of Copenhagen assured me that he



had given it frequently to persons who told  
him they had been bit by mad Dogs. I should  
not have mentioned this did I not find  
that Dr

President of the Society at  
Berlin mentions it & tells us that he had  
tried & that it never failed of Success.  
There is no Reason to doubt of this Gentle-  
man's Candor or Veracity but whether  
the Dog was really mad ought to be inquired  
into Persons who are bit by a Dog being  
apprehensive that he is mad make use of  
any Medicine recommended to prevent  
the Hydrophobia & when this does not  
appear they ascribe it to the Efficacy  
of the Medicine when afterwards it  
appears that the Dog tho' vicious was  
not mad. It appears to be this that deceived  
D<sup>r</sup> Meade with regard to his Powder which it  
is probable never produced any good Effects in  
a single Case of the Hydrophobia from real Canine  
Madness. This Disease is of a Spasmodic Nature  
& is often attended with violent Convulsions. I had  
an



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an Opportunity of observing this and the Progress of  
of the Disease in a Girl of 8 Years of Age in the Edin-  
burgh Infirmary who notwithstanding every Thing  
was attempted for her Relief died in a short Time.  
Possibly Copper which is violently Astringent & Anti-  
spasmodic may prevent the Hydrophobia from coming  
on.

Copper is employed in external Applications to  
Ulcers as a Digestive & ischarotic. By stimulating  
the Vessels it may produce that Inflammation which  
is necessary to bring the Formation of good Pus. The  
Antients frequently employed it in both these Inten-  
tions. Mercury is now more generally employed but  
there are Cases where the Copper is preferable.  
D<sup>r</sup> Cullen gives you an ~~Case~~ Account of a Disease  
which appeared a great many Years ago in Scotland  
with Ulcerations of the Mouth & Fauces with Ulcers  
on the Tongue, about the Anus & in different Parts  
of the Body resembling the Venereal Disease but dis-  
tinguished from it by the different Sloughs of the  
Ulcers, their pinnated Appearance, want of Infec-  
tion from Carnal Communication &c. Mercury in  
this Case was tried with no Success, but Copper al-



most always effected a Cure. A Solution of Verd<sup>e</sup>, grease applied to the Tongue very easily effected a Cure there, by inducing a good suppuration but is more difficultly applicable to the Tonsils also less quick in producing a Cure. This Disease appears to resemble very much a Disorder in the Southern Parts of the Continent called the Yaws which we are also informed sometimes will not yield to Mercury. From this whenever we have a difficult Ulcer under our Care we should never despair of a Cure until we have tried the Effects of Copper. For the Purposes of Escharotics the best Preparations of Copper are Mel & Unguent Egypt. I would here advise you never to be too free with Escharotics at all for by the frequent Use of them for the Removal of Fungus Flesh a good Wound is often converted into an illconditioned Ulcer. A Surgeon of great Experience informed me that he very seldom made Use of Escharotics & when he did use them he never applied them to the Body of the Wound but only



to the Edges. When they are absolutely necessary we may apply a little of the Mel Egypt: to the Ulcer. The Escharotics most in Use are the Roman Vitriol - burnt Alum red & white Precipitates. But as to the Dose of Copper taken internally no certain Rules can be laid down, for one person may take a certain Dose without much Nausea when at the same Time half the Quantity will vomit another. The best Method is to begin with small Doses & to increase them gradually as Occasion may require.

The next Metallic Astringent we shall treat of is  
Iron.

This is a Metal of more general Use than any other. It may be combined with most Saline Substances & is soluble in all the Acids. The Vegetable Acid only corrodes it but extracts all its Virtues. It may be given in Substance, as the Acid of the prima Via will corrode it, but this is always an uncertain Method as it depends upon the Acid in the Stomach & if the Iron does not meet with this it will produce disagreeable Effects - merely from its Weight & Mechanical Motion



we ought therefore to use some Preparation & it is of no great Consequence which we employ as they all possess similar Virtues. When we want it in a Powdery Form Lemery's Method is the best viz<sup>t</sup> to let Water digest about an Inch deep upon Iron Filings by which means part will be converted into a fine black Powder which may be separated from the corroded Filings by shaking the Vessel. Iron combined with Acid of Sea Salt gives us the Martis of the Shops. This will readily combine with highly rectified Spirit. Vin<sup>l</sup> form a Kind of Dulcified Spt. Sal. of a very agreeable Flavor. Iron is purely Astringent without the stimulating Qualities of the Copper or the Sedative & deleterious Qualities of Lead but it is neither so powerfully Astringent as the one nor so much of an Antispasmodic as the other. From its Astringency Iron is indicated in all Cases of Laxity & Debility & in Obstructions proceeding from the same Cause. Iron is likewise employed



employed as an Antispasmodic taking off the  
 Mobility & Irritability of the Moving Fibres.  
 It is on this Account indicated in the Hysterics  
 where it is not to be given during the Paroxysm  
 but is to be employed after it to prevent its Return.  
 It often proves a Cure in this Disorder & it is  
 probable it would prove so often were not this  
 Disease frequently accompanied with Obstruc-  
 tions of the Viscera. On this Account I generally  
 combine Chalybs Pr<sup>t</sup> with Magn. Chalk or some  
 other absorbent & I obtain great Advantages  
 from this Combination than when the Steel  
 is employed alone. The absorbent form a Neutral  
 Salt with the Acid in the Stomach which proves  
 a gentle Laxative & prevents the Costiveness which  
 would otherwise take Place. This Combination pro-  
 duces better Effects than any other Preparation ex-  
 cept the Mineral Waters which often produce  
 Effects not to be imitated by any Preparations in  
 the Shops. This is undoubtedly owing to the smallness  
 of the Doses as they contain nothing but Iron and



The strongly impregnated Waters seldom answers so well as the weak ones. Iron is sometimes combined with Bitters & Aromatics & in this Way may be given to Advantage in a very relaxed State of the Stomach. Whenever we must continue the Use of Iron for a long Time the most agreeable Method of taking it, is to quench a red hot Iron in Cyder or Wine & make use of it for common Drink. Iron has been recommended in the Hypochondriac Disease but as this Disease is commonly attended with Rigidity the Use of Iron is certainly improper. It seems to have been given on Account of the Similarity which was supposed to take place between the Hysterical & Hypochondriac Diseases - We now know them to be intirely distinct. Dr Cullen gives the History of each Disease and points out their Difference very properly. The Hysterical Disease is accompanied with the Laxity of the Solids, Flatulencies & a disordered State of the Bowells & frequently with loose



Stools. It generally attacks Women, is purely Spasmodic, is in general incidental & is relieved by cold Weather, hence it <sup>is</sup> not so frequent in the Northern as in the Southern Climates. The Hypo, chondriac Disease is accompanied with Rigidity of the Solids, Costiveness & sometimes Spasms in the Abdomen but is seldom purely Spasmodic. It generally attacks People of a Melancholic Temperament & in the Decline of Life, is commonly habitual & is not so frequent in the Southern as in the Northern Climates. They are sometimes both combined in the same Persons.

Iron has been employed for the Cure of Inter mittents particularly by D.<sup>r</sup> Stahl & his Followers. They laying it down as a Maxim, that a Fever was an Effort of Nature to throw off some Morbid Matter from the Body thought it improper to disturb her in her Operations & therefore employed the Peruvian Bark itself. Iron is employed with Advantage in Chlorosis & suppression of Menses owing to this Cause. I say owing to this Cause, because suppression of Menses is not



always owing to this Cause i.e. Relaxation but is oftentimes occasioned by Rigidity and Spasms of the Uterus in which Cases Iron proves hurtful.

The Use of Iron is improper in all Inflammatory Diseases & in Haemoptoe & other Haemorrhages attended with Inflammatory Symptoms. It is improper in all Obstructions of the Viscera & wherever there is a Disposition to Putrefaction. It ought likewise to be avoided in Consumptive & Plethoric Habits. In Biliary Diseases we ought not to use it except in small Doses. In Ulcers of the Lungs & other Viscera it is not to be given unless very diluted. In these Cases the Mineral Waters will answer better than any other Preparation. If our Patient cannot have the Advantage of these we may make an Artificial Mineral Water by dissolving  
 of Water. The Use of this should be accompanied with a proper Degree of Exercise.

Iron is possessed of a Considerable  
 Vermifuge



Vermifuge Quality. Chalybs. Ppt. has been com-  
monly made Use of in this Intention. I have  
frequently used it with Success. I now however  
generally Use the Sal Martis & think it much  
preferable to the prepared Steel or any other  
Preparation. It not only destroys the Worms  
present but by giving Tone to the Intestines, pre-  
vents their future Generation for when we come  
to treat of Anthelmintics we shall find that  
a relaxed State of the Intestines is the most  
frequent Cause of Worms. I generally give it  
from ℥.ij to ℥.v at a Dose mixed with a little  
Molasses or Syrup not only to conceal the Taste  
but also ~~to~~ because all Sweet have the Power of  
destroying Worms.

I have found Sal Martis to be a very useful  
Remedy in Relaxations of the Stomach (producing  
Indigestions, Flatulencies & frequent Returns  
of a Violent Colic. In these Cases I generally  
give in Doses of ℥.ij made into Pills with Castile  
Soap & occasionally a little Rhubarb added to



prevent Costiveness.

Sal Martis & all the other Preparations  
of Iron give a dark or even black Color to  
the Alvine Feces.



## Lecture 10th.

The next Metallic Astringent we shall treat of  
is — Lead.

This is only used in Medicine when combined with some other Substance. The Calx of Lead with Oil forms the Empl: Comm. which is the Basis of most other Plaisters. This Lead answers no other Purpose than giving proper Consistence. Lead is active only when combined with any of the Acids, but in ~~general~~ Medicine we generally employ the Composition of it with the Vegetable Acid. This gives us the Acetum Litharg: of Goulard a famous Surgeon at Montpellier in France which is the Basis of the Bogies that go under his Name. The Acetum Litharg: is prepared in the following Manner — We take as many pounds of the Calx of Lead e, g, Litharge as Pints of Vinegar & boil them over the Fire after they have boiled some Time we pour off the Liquor and keep it for Use. 3℥s of this Extr. Sature is as M.<sup>re</sup> Goulard calls it is to be added to a pound



of melted Wax when these are fully incorporated  
 we dip a Piece of Linnen cut in the Shape  
 of a Tongue into the Composition & when  
 they are cold we roll them up in the form  
 of a Bougee these will answer very well in the  
 C<sup>an</sup>dules or Excrecences of the Urethra <sup>which</sup> are not  
 of long standing. When they have remained a  
 long Time accompanied with Fistula we must  
 make our Bougees stronger. We then take  
 ℥ijss or ℥ij Extr: Sat: to ℥vij Cer: & dip the  
 former Bougees into the Composition. Bougees  
 composed of nothing but Wax, Deer's fat & Oil  
 have been found serviceable when the Urethra  
 was so sensible as not to bear any other Bougees.  
 Some add Mercury to their Bougees but those  
 above described will answer every Purpose  
 of a Bougee. The Linnen that is employed in  
 making Bougees should be fine Holland that  
 has been worn by which it is rendered soft cut  
 in a Ling<sup>u</sup>iform Shape. The Composition should  
 be neither too hot nor too cold & we should  
 be



be careful to suffer no Air Bubbles to remain in the Linnen which would render the Bougee unequal. Bougees are used when there are Excrecences in the Urethra with or without a Gleet. We know that these Excrecences are in the Urethra when the Urine will not pass in a continued Stream but oftentimes comes off by Drops & sometimes by two Streames with Pain. They are likewise employed in Gleet of long standing. They are generally introduced at Night & suffered to remain in till Morning. They frequently produce Pain with some <sup>degree of</sup> Inflammation & of Consequence Suppuration. They destroy Caruncles by inducing a Suppuration in them. They cure Gleet by producing a Constriction in the Glands of the Urethra & Relaxation of which is we know sufficient to keep up this Discharge.

Lead besides its stringent is possessed of ~~several~~ considerable Sedative Virtues. It should always be used with the utmost Caution for when continued for any Length of Time it is apt to produce Paralytic Affections of different parts



particularly of the Extremities. The Acetum Lethargi is employed for various external Applications. It is generally employed considerably diluted. A Spoonful of it with two Spoonfulls of Brandy is added to a Bottle of Water. This Combination is well known under the Name of Aq: Veq: Min: This is employed with Advantage in inflamed Eyes. Guttj is instilled into the Eyes at a Time & is repeated bis vel ter Die or else a Compress moistened with it is kept applied to the Eyes. It is likewise said to be useful in pains of the Ears when Deafness is apprehended a Tea Spoonful is poured first into one Ear & 5 or 6 Minutes after into the other - A Compress moistened with it is very serviceable in Scalds & Burns & other Cases of this Nature. It is also employed in Cases of partial Erysipelas but if it does not produce speedy Relief here the Use of it should not be persisted in lest the Part should become Gangrenous. It is recommended in Fistulous Ulcers. In Sprains a



Compress moistened with it produces very good Effects. It generally takes off the pain & swelling which commonly attend these Cases. M<sup>r</sup> Goulard recommends a Poultrie of Bread with Acetum Litharg: in the Paronichia. This Disease commonly called a Felon generally affects the Joints of the Fingers & tormenting the Patient with a most acute Pain for two or three Days, until some Degree of Suppuration takes place an illconditioned Ulcer is formed & the Disorder generally terminates in the loss of the Joint. If this Application is found to upon Tryal to possess all the Virtues that M<sup>r</sup> Goulard ascribes to it we may consider it as a valuable Improvement for no Medicine hitherto known has been found serviceable in this Disorder. It should be used in the Beginning. This I mention that in Case you should employ it you may not attribute Failure to the Inefficacy of the Medicine when it is perhaps owing to the Disorder being too far advanced. It is likewise employed ~~likewise~~ in the Piles & in the Hernia Scrotalis and



even in a strangulated Hernia. In this last Case it should be used cold. It is likewise employed in Scrophulous Indications of the Glands with Success. —

Saccharum Saturni which is the Acetum Lethargi in the form of Crystals is recommended <sup>by Dr.</sup> Boerhaave in Foulness & Eruptions of the Skin in partial Inflammations as a Refrigerant & as a Cosmetic. It gives one of the best practical Writers on the Diseases of the Eyes recommends it in Ophthalmia. It is employed in Scalds & Burns. M<sup>r</sup>. Bell of Edinburgh recommends a Solution of Sacch: Sat: in Water to the Extract: as we can be more certain of the exact Strength of the former than of the latter & the latter is apt to let fall a Sediment which the former will not if a little Vinegar be added. Boerhaave Heister & others recommend Sacch: Sat: in Scirrhus to prevent its becoming Cancerous. A Scirrhus is a hard & indolent Tumor which will often remain



remain a long time without giving the Patient  
 any Inconvenience but if it is injured or any  
 Stimulus is applied acute Pains are felt, it  
 ulcerates & becomes a Cancer. Lead by its se-  
 dative Qualities rendering the Parts less sen-  
 sible may prevent this Effect from taking  
 Place. Perhaps to this may be owing the Success  
 of old Family Receipts in this Case into the  
 Composition of which Lead generally enters.  
 In this Case I would prefer the strong Vinegar  
 of Lead without any Spirit. It may be employed  
 in Form of a Poultice with Bread or may be  
 mixed with Flour to a proper Consistence &  
 then spread upon a Rag & applied over the Part.  
 I consider the Introduction of Lead Water into  
 general Use as a very considerable Improvement  
 but like all other efficacious Medicines when  
 employed improperly it may produce bad  
 Effects. Lead used inadvertently produces of-  
 ten times Paralytic Affections in different Parts  
 It is hurtful in Eruptions of the Skin owing to  
 Relaxation. When it is employed for too long a



Time in Erysipelas it may produce Mortification. Mercury & Lead are sometimes employed in Medicine combined under the Name of Trochisci Minio. These have been used with Success in Scrophulous Ulcers. They are to be used only when the Ulcers are few, for if they are numerous & the Medicine is administered too freely its Exhibition may be attended with disagreeable Effects.

Sacch. Saturni is employed internally in Hemorrhages where it acts in both as a Sedative & Astringent. It is likewise employed in Diarrhoeas Dysenteries Fluor Albus & Gleet. For a few Doses it may perhaps be given without bad Effects but it should not be continued long as disagreeable Consequences certainly follow. Sacch. Sat. & Antiptisiva into which that certainly enters have been used with Success in continued Fevers & proved very serviceable in taking off the Nervous Symptoms. Mr John Hunter recommends Sacch. Saturni in the Tetanus. I have never tried it in this Complaint nor do I know that



it has ever been tried here. Whitelead is em-  
 ployed externally in the form of an Ointment  
 in the cure of Burns. It ought not to be  
 used long for it induces such a degree of flac-  
 cidty as renders the parts very difficult to heal  
 White Lead is also used by the Ladies as a Cosme-  
 tic to produce a fair hand & skin & to take  
 off those Freckles & spots with which they are  
 sometimes troubled. They however pay dearly  
 for this shortlived beauty. The skin becomes  
 dry & shrivelled & a disagreeable sallowness  
 with Pimples takes place which remains dur-  
 ing life. Lead has been accused of produ-  
 cing the Colica Pictonum & Palries of diffe-  
 rent kinds. The Colica Pictonum is distingui-  
 shed from all other species of Colic by its fre-  
 quently terminating in palries of the lower Ex-  
 tremities. The History of the Disease will  
 however better enable us to know this Com-  
 plaint. The patient sometimes suddenly feels  
 a twisting pain in the Abdomen but in ge-  
 neral this is preceded by the following symp-



toms. There is a Weight & Oppression in the Re-  
 gion of the Stomach - a Nausea & Aversion from  
 Food. Heaviness of Mind Languor of Body,  
 Dimness of Sight & a paleness of the Counte-  
 nance - a Pain in the Abdomen generally  
 situated about the Navel with a sensation  
 as if the parts were twisting or as if some-  
 thing were boring in it. The Epigastrium  
 sometimes feels hard to the touch but not  
 always & is generally retracted towards the  
 Spine with great pain. The pain some-  
 times remits for a short time but returns  
 again with increased Violence forcing cold  
 Sweats. From the Violence of Pain the pa-  
 tient is entirely deprived of Sleep. There is  
 little or no evacuation by Stool; when  
 any faeces are voided they are hard round  
 & scarcely larger than sheep's Dung. The  
 Anus is very much constricted & it is  
 sometimes almost impossible to force a  
 Passage. It appears also to be drawn up-  
 wards. The same constriction takes  
 place



place in the urinary passages. There is a great  
Sickness at the Stomach Nausea & sometimes  
a Vomiting which somewhat relieves the Pa-  
tient for a short time. In the Beginning of  
the Disorder there is no fever as it advances the  
Pulse becomes frequent small weak & contrac-  
ted. The Thirst is not very great. The Disor-  
der generally continues in this way for 12 or  
14 Days about which time a slight pain is  
felt about ~~which~~ ~~the~~ ~~the~~ the Spine of  
the Scapula which at last becomes fixed  
& causes a weakness of the Arms. This weak-  
ness gradually increases untill it is chan-  
ged into a paralytic affection of the upper  
Extremities. The feeling is much impaired  
tho' seldom entirely destroyed. Sometimes  
both upper & lower extremities are affected  
but this is seldom the Case the upper  
ones alone being most generally affected  
From the Time the extremities are Para-  
lytic the pain in the Abdomen entirely  
ceases. The most common Cause of this



Disorder is the Poison of the Lead introduced into the Body. Hence we find that those employed in Mines in digging of Lead & those especially employed in smelting Lead & exposed to the Vapor of it are very often afflicted with the Colic. Pottery who make Use of Lead in glazing their Earthen Ware & are exposed to its Vapor are so subject to this Disease that from them it has been called *Colica Figulorum*. Painters who use White Lead in their Art also are very subject to this Disease & from them it has been called *Colica Pictorum*. It is often found to be brought on by sophisticated Wines. Some Vintners when their Wines become prickled or tend to Acidity mix with them a Quantity of Litharge or Sugar of Lead which sufficiently obviates this Tendency. Dr. Franklin who has written an excellent Treatise on this Subject shows that in those Cities where Houses are covered with Lead or when the Water that is used for drink or Cooking is preserved in leaden Cys- terns, the Inhabitants are very subject to the *Colica Pictorum*. He gives us an Instance in



Amsterdam. The Houses of this City were formerly covered with Tiles, but when it increased in Riches were covered with Lead. The leaves of the Trees which make Amsterdam look almost like a Forrest being carried by the Winds on the Tops of the Houses they undergo a Fermentation and corrode the Lead. When it rains this part is carried down into the Cysters with the Water which the Inhabitants use with their daily Food & since the Houses have been covered with Lead the Colica Pictonum has been very frequent in that City, whereas formerly it was scarcely ever heard of. This Colic is very common in those Counties in England where great Quantities of Cyder are made & it has commonly been ascribed to the fermenting Juice of the Apple. Doctor Aken-side has shown that it is not owing to the Cyder but to the Lead contained in the Cyder. He observes that in the Cyder Presses they <sup>mostly</sup> make Use of Leaden pipes. If the Disorder was owing to the Cyder alone we should be as much subject to it in this Country or even more so, where Fermentation



is carried on more vigorously from the Heat of the Climate, than the Inhabitants of great Britain. But we find this <sup>is</sup> not the Case. Our Presses have no Lead about them we employ nothing but Wood or Iron.

As for the Cure of this Disease it would ~~it would~~ be only taking up your Time to say any Thing upon it as it has been treated in so masterly a Manner by many able Writers. You may consult Akenside De Haen, Huacham, Hilary Tissot Tronchin, Cullen & many others. I shall only mention one Fact which I met with in De Haen's Ratio Medendi. Hungary is a Country rich in Mines but poor in Inhabitants. Numbers that work in the Lead Mines are carried off yearly by the Colica Pictorum. Dr De Haen observed that the Miners in one particular Place were remarkably free from it. This they ascribed to the Advice of a certain itinerant Quack which was to give the Men every Morning before they went to Work a Piece of Brown Bread spread with Hogs Fat. Since they had pursued this Method which was about three Years they had scarcely ever been troubled with



with the Colic, tho' before this Time it had been very frequent amongst them. This was confirmed to them by a Physician who had attended the People 12 Years. There is no doubt but a Breakfast of this Kind which being difficult of Digestion remaining long on the Stomach would most effectually tend to sheath & obtund the Acrimony of the Lead. A Dinner of fat Broths would still further tend to produce this Effect. From this Fact we learn that Oil taken by the Mouth & thrown in by Glysters would be of great Service in this Disorder. We also learn that the best Preservation for those who are exposed to Lead as Painters, is, to live principally upon fat Meats & to use large Quantities of Butter or Oil.

### Zinc.

This has been used in various external Applications. Van Swieten recommends a Solution of the Flowers of Zinc in Water as an Astringent in weakness of the Eyes. This Solution is also recommended when the Skin has been hurt by Friction as in riding. In most Chronic



Diseases the Skin is apt to break in different  
 Places. This we may generally foretell by red  
 Spots appearing at the Skin. If these parts  
 are bathed with a Solution of Flo: Zinci  
 the Skin will generally be prevented from  
 breaking. Children or fat People are apt  
 to chafe or have their Skin sore in different  
 Places. These may be prevented or when  
 it has taken Place be remedied by Means  
 of the same Solution Lap: Calion: & Tutty  
 are sometimes employed to give a proper  
 Consistence in some Plaisters & Ointments.  
 They possess no Virtues for they will yield no  
 Impregnation to Water & have no Virtues  
 when combined with Vinegar. White Vitriol  
 is a Combination of Zinc with the Vitriol Acid.  
 It is employed externally in Hemorrhages.  
 It is likewise used with good Success in Inflama-  
 tions of the Eyes. We may likewise employ an  
 Injection of it in a Gonorrhoea when the Inflammation  
 is gone with Advantage. It is said to be a power-  
 full Emetic & is recommended where Poison has



been swallowed. The Dose is  $\frac{3}{4}$  grs.

The Flowers of Zinc have been lately introduced into Medicine with many Testimonies. They were not advised internally by any one except Glauber till D.<sup>r</sup> Gaubius discovered them to be the Remedy Employed by the famous Empyrie Luddemannus under the Title of Luna Fixata. After this he exhibited them with Success in the Cure of convulsive & spasmodic Diseases. D.<sup>r</sup> Hart gives an Account of their Use in an Inaugural Dissertation which he published upon taking his Doctors Degree at Leyden. The first Case D.<sup>r</sup> Hart relates was that a Girl of 17 Years of Age who from a Fright was seized with Convulsive & Spasmodic Affections which were succeeded by Tremors of her whole Body particularly the inferior Extremities. This Disease our Author observes might justly be termed a Slight Chorea Sancti Viti. On the 6<sup>th</sup> day after the Attack of this Complaint she was put on the Flowers of Zinc four Grains of which were divided into Six Powders - 3 of which



to be taken every Day. From their Use the Symptoms were considerably diminished without any Uneasiness being produced. This Success encouraged D.<sup>r</sup> Van Doeveren who treated the Case to increase the Dose to ℥ij Sacch: therefore finely powdered he added ℥<sup>r</sup> x ij Flor: Zinc divided into as many Powders. 3 taken every Day & by the Time they were finished her Complaints were intirely gone: Some Months after this Patient from a sudden Fright was again seized with her former Complaints, but upon taking ℥<sup>r</sup> iiii Flor: Zinc divided into ten Powders they were perfectly removed.

The two next Cases by D.<sup>r</sup> fall under the Notice of D.<sup>r</sup> Gaubius. The first is the Case of a Boy of 4 Years of Age who labored under a real Epilepsy suspected to be hereditary as his Grand Father was much afflicted with that Disease & three Children of the same Family had died of it. After many other Remedies had been tried in Vain, D.<sup>r</sup> Gaubius ordered him  
the



the Flowers of Zinc. These he took to the Quantity of one Grain twice a day & from the Use of them was perfectly cured.

The second Case by D.<sup>r</sup> Gaubius is that of a Man about 50 Years of Age who from a high Degree of Vexation was thrown into such violent Convulsions as to be threatened with immediate Suffocation, Upon a Vein being <sup>opened</sup> & other Remedies administered the Fit at that Time went off but in about two Weeks after it returned with as great Violence as before & attacked him even twice in one Night. To this Patient the Flowers of Zinc was given every two Hours. After this he had no Return of the Fits.

D.<sup>r</sup> Gaubius observes he has used the Flower of Zinc in Case of Chincough & Hysteric Hiccough & of the Spasmus Cynicus. He adds that they frequently did more than any other Medicine but that they were by no Means successful in every Case.

This Account excited the Physicians at Edinburgh & the other parts of Scotland to



make Experiments with the Flowers of Zinc  
 W.<sup>m</sup> Bell Surgeon at Edinburgh has published the Case of a Man who had been afflicted with the Epilepsy for 10 Years & by it was deprived of both his Memory & Judgment but was intirely relieved by the Flowers of Zinc. By the latest Account it appears that the Flowers of Zinc are still used and with the same good Effects as formerly. In a late Volume of the Medical Commentaries we have an Account of an obstinate Convulsive Cough which gave way to a few Doses of the Flor. Zinci after resisting many other Remedies as also a violent Hiccup, sin that had proved very refractory & withstood all the Class of Nervous Medicines as Musk, Castor, Opium, Camphor Bark Valerian & warm & cold Bathing. Blisters afforded only a Temporary Relief. It was at length perfectly cured by the Flowers of Zinc to the Quantity of Nine Grains in a Dose. I have myself tried in a Variety of Cases



& with Regret I add that my Endeavours were fruitless in every Case but one that of a young Woman in the Pennsylvania Hospital afflicted with severe Hysteric Paroxysms who was cured in a few Weeks by the Use of it. In every Case where I have exhibited it for two or three Weeks some Relief was obtained.

Epilepsy is owing to <sup>so great</sup> ~~such~~ a Variety of Causes, that it is impossible any one Medicine can be adapted to every Species.

The Cause of this Disorder is often lodged in the Head & Brain & in this Case it is very obscure & even without the Reach of Medicine. When the Cause is seated in the Head it may be owing —

1<sup>st</sup> To a wrong Conformation of the Brain in its original Formation

2<sup>nd</sup> To Tumors in the Cranium. I once saw a Case of this Kind which appeared upon Dissection. There no Medicine could possibly be of any Service.

3<sup>rd</sup> It may be owing to Extravasation of Blood in the Brain — Thus Convulsions are frequently



excited by Contusions & Fractures. Few Apoplexies terminate without Convulsions which are excited by Nature to throw off the offending Cause.

4.<sup>th</sup> Extravasation of Serum in the Ventricles this is generally attended with Convulsions & here Zinc is of no Service.

Epilepsy may be owing to an Obstruction of the Coats of the Arteries & Veins of the Brain In four Cases out of five the Causes of Epilepsy remain concealed from us & if we were acquainted with these Causes it would nevertheless in many Cases remain incurable.

The Cause of Epilepsy is sometimes seated without the Head. I do not mean the Occasional Application of Stimuli but some permanent Cause existing in the Stomach & Bowels. It is sometimes Idiopathic. Under this Head may be ranked a too great Sensibility & Irritability of the System in



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in general or of some part in particular as the Stomach & Bowells. This Sensibility & Irritability may exist without producing Epilepsy - It requires some occasional or exciting Cause to bring it on such Persons.

Epilepsy generally makes its Appearance before the Age of Puberty & is most frequently brought on by Agitation of the Mind. Three Times out of Four it is first occasioned by violent & sudden Terror unless where it is generated in the Womb of the Mother. I know several Mothers subject to Hysteria whose Children are thrown into Convulsions upon the Application of any violent Cause or even a slight one long continued & some of these Children remain subject to this Disorder. This is a strong Confirmation of my Opinion that Epilepsy may be owing to too great Sensibility & Irritability. This Disorder disappears about the Age of Puberty when the Body has arrived at its full Growth. If it attacks Children in their early Infancy & they are not relieved from it at the Age of Puberty



or when the Body has attained its Growth  
 they will continue subject to them during  
 the Rest of their Lives. This kind of the Dis-  
 order where the Cause is seated without  
 the Head is the only one in which Relief  
 is to be obtained from Medicine. For this  
 Purpose many Substances have been recom-  
 mended as Specifics but they have been  
 always laid aside because they oftener fail-  
 ed than succeeded. This is a bad Reason  
 because no Medicine is suited to every Species.  
 Zinc is a gentle Astringent & perhaps to  
 this Quality all its Effects are to be attributed  
 Astringents have at all Times been used  
 in this Disorder but only in weak & gentle  
 Doses. When we wish to alter the natural  
 Constitution by gradual & slow Means they  
 seem very proper. This Viscus Quernus which  
 is a gentle Astringent has often relieved this  
 Disorder. Whether I am right or wrong it  
 cannot invalidate the Usefulness of Flowers



of Zinc which must be considered as a valuable Acquisition to Medicine.

The Flowers of Zinc are obtained either by sublimation or Precipitation. For the Process to obtain them I refer you to Books of Chemistry & Pharmacy. The Method generally used in this City is to add to a filtered Solution of Salt of Tartar - the Alkali attracts the Acid & the Metallic part is precipitated in the form of a White Powder which dried gives us the Flowers of Zinc. The Dose is from 3, 4, 6, to 12℥. White Vitriol has been used for the same Purpose & with the same Success.

In our next Gentlemen we shall treat of Water



# Lecture 11<sup>th</sup> Water.

Water is an <sup>is</sup>ipid inodorous not inflammable transparent & fluid Body. There seems to be but one Species in Nature except where other Matters adhere & are easily separable. There is a strong Presumption that Water owes its Fluidity to the Quantity of Air combined with it. Water is readily convertable into Earth. It may be reduced under two heads.. Simple or Common & Mineral Waters.

The first is universally mixed with some Matters which however are not perceptible to our Senses.

Mineral Waters are so impregnated as to be easily discoverable by our Senses. However Common<sup>m</sup> Waters differ considerably to one another.

The most simple Method to judge of the Purity of Common Water are first to add a Solution of the Lunar Caustic which is precipitated



precipitated by the Vitriolic & Muriatic Acids as these are generally present in the Earth. Second, Sugar of Lead is the most subtle Test of any & very few Waters will stand the Test, of this we must therefore only judge from Plus et Minus. Specific gravity has been reckoned among the Test but improperly as Air diminishes it & many Saline Substances have the Powers of fixing a large Quantity of Air. The more Air the Water contains the more Powerful Menstruum it will be. Water is derived to us from the Atmosphere.

Rain Water is the purest of all Waters & can only be imitated by frequent Distillation. It is perfectly pure but still impregnated with a Matter capable of Putrefaction. Snow & Hail are equally pure only less impregnated with Air than Rain Water & consequently a weaker Solvent. Dew is another Atmospheric Water which must be more impure than the former as they do not rise high from the Earth - we know



that they are more putrescent than the former. Rain Snow & Hail fall in greatest Quantities in the Mountains. These form Brooks Rivers & Lakes & the Waters of these come nearest to the Atmospheric in purity and by running a great Distance they may be impregnated with various Matters. The Waters of Lakes do not intirely stagnate for they have generally some Outlets. small Lakes may however suffer some Change & become more putrescent. River Waters seem to be very tenacious of their purity & are seldom affected by any Impurities communicated to them. Spring Waters have their Rise from the former for as they penetrate the Earth they ~~are~~ afterwards break out again & give us Springs. These are of various Degrees of Purity. Those near the higher Countries seem to be purer than those in the Lower Ground. few of them are however intirely pure.



Mineral Waters have afforded Matter of Inquiry to Physicians & Chemists of all Ages we should therefore expect to find a good Account given of them & their Qualities & Virtues but here we are deceived as those Writers are generally unacquainted with the System of Chemistry. We must therefore proceed on quite a new Plan & endeavour to determine a Priori. To do this we must first consider what Matters may be combined with Water & of what Quality those Matters are. These may be reduced under four Heads -

1<sup>st</sup> Saline 2<sup>nd</sup> Metallic 3<sup>d</sup> Inflamable & 4<sup>th</sup> Earthy.

1 Saline Impregnations. There are no Acids in the Earth to impregnate Water except the O & C the latter is found in Alimentary Salt & in it alone - in a fixed Amm. it is likewise very rarely found - it is likewise present in Sea Water & in some Springs but scarce in its simple State. The Vitriolic



may be present in its separate State but only for a moment as it is so ready to combine with other Matters. The Water which flows out from Coal Mines has more or less of Oil in it which is owing to the Pyrites deliquescing in the Air & therefore is hardly to be called a Mineral Spring.

**Alkalines.** The Vegetable Alkali is certainly excluded from the Fossil Kingdom & therefore not found in Mineral Waters. Volatile Alkali has not been ascertained to enter mineral Waters in a separate State yet a Vol. Alk: has been obtained from Mineral Waters by accurate Chymists but it seems the Result of a decomposition of Mepar Sulph: present there. Ammoniacs have not yet been discovered in Mineral Waters which seems owing to its easy Decomposition. **Fossil Alkali.**

This seems almost universally present.

**Neutral Salts.** Consider what has been said above & you will easily see that Glaub: & common Salt are the only Neutrals that



that occur in Water. They are seldom pure but commonly combined together. Glauber's Salt is not so universally present as has been imagined but a combination of  $\text{O}$  & Magnesia has been generally taken for it. This gives us purging Saline Waters as of Epsom in England. — Inflammables. Naptha is the only fossil oil & therefore we must expect only this. It diffuses itself in the same Manner as Essential Oils in Waters distilled. Sulphur. This cannot be combined with Water in a simple State but Sulphur combined with Alk. becomes soluble in Water. Sulphureous Waters therefore commonly called stinking Waters, e.g. Harrowgate in England are owing to this Mixture Sulph. The Sulphur however is generally present in very small Quantities & therefore the Virtues of this Water are not perhaps so considerable as has been imagined & their virtues may be rather owing to the Alk. Whether Oils mixed with Alk. & forming Soaps are



dissolved in Water & give us saponaceous Water is still doubtful. The water called saponaceous form rather Earthy waters as they give us a fine Clay.

Metallic Matters. The most part of these are insoluble in the Acids present others again are insoluble in their Ores others require heat. The greatest part are therefore excluded. Iron & Copper are the most common Metallics & the easiest soluble, besides they can precipitate all the other Metals. Copper is also very rare as it is liable to be precipitated by the Iron. Iron therefore is present in almost every Spring; rarely in its natural state frequently combined with Neutral Salts. Dissolved in the  $\phi$  it should be in the State of Green Vitriol but we can hardly ever obtain it so. This is because the  $\phi$  is generally in a volatile State when



it is readily decomposed & loses its Power of holding Iron in Solution. Water impregnated with Copper is found in few places & by laying Masses of Iron into them Copper the Copper is precipitated & the Iron suspended hence the Name of Cement waters. It is remarkable that we find no waters impregnated with Zinc tho' it is suspended by the ~~Q~~ & not precipitated by Iron nor Copper: The White Vitriol is found Native & Zinc is now found frequently in the Earth. Perhaps nevertheless Zinc is frequently present but there is a Difficulty in discovering it whereas Iron & Copper are easily discovered. The only true means to know is by taking the Residuum of the Waters & fermenting it with Copper & thence producing Brass. I have found Zinc present in one Spring of mineral Waters.

Earths. These are very copiously suspended in Water & independent of any Solution in.



Acids, especially the Calcareous, & these are intirely insipid only discoverable by their Sediment. E.g, all in the encrusted Waters. Besides this Magnesia is generally frequently found. Alum is likewise found. Crystalline Earths are undoubtedly present in Waters, at least Waters deposit Crystalline Matter. But they are never present in such Quantity as to give them a peculiar Quality. Argillaceous Earth is probably present in Water & often in large Quantity, especially in those commonly called vapouraceous Waters. Earths combined with Vitriolic Acids give us several Species of Waters.

Earthy Salts. 1<sup>st</sup> Vitriolic Acid with Calcareous Earth which give us Selenites - this give us what are commonly called hard Water. Spurious Glauber's Salt is frequently present. Earths of Alum occurs rarely, as Alum is precipitated by Iron. Fixed Ammoniac occurs very rarely & perhaps not at all. For  
the



the Method of Discovering the Constituent Parts  
of Mineral Waters - vide Chemical Dictionary

Of the Medical Virtues of Common & Mineral Waters

We are here reduced to the same Necessity as  
before. The Facts alleged in Proof of their Efficacy  
are not to be depended upon, but have been much  
misrepresented by the Ignorance, Design and  
Credulity of their Abettors. This will appear still  
more evident when every Virtue they can boast of  
has been attributed to common Water itself. The  
Virtues of Common Water are very considerable.  
Taken into the Stomach it acts as a powerful  
Stimulant to the whole System. Hence the  
Southern Physicians & the Antients used it in  
bringing on the Crisis in Fevers. On the same  
Foundation it is of Use in Chronical Cases by  
giving the Fluids a Tendency to the Surface and  
in this Way it is one of our best Medicines. It  
excites Appetite & promotes Digestion by its  
Stimulant & Solvent Powers & from its Bulk  
it promotes the Peristaltic Motion of the Intestines  
Carried into the Blood a great Deal is to be attributed



to its Bulk by distending the Vessels it will Stimulate the Vascular System & thence keep up & promote the several Secretions. As the Fluids are constantly changing. Water will be the best Menstruum for carrying off the degenerated Parts & keeping the Remainder pure & fresh. Hence it is useful in the Scrophula. It thus to be the principal Medical Ingredient in Mineral Waters - upon Impregnation however they may become more efficacious. The Acid & Alkaline Impregnations may cooperate with the Water as Stimulants, Antiseptics & Antirzeumics and hence promote the Secretions.

I am more at a loss to find out the Virtues of Sulphureous Waters, the Oils & Sulphur being in a too small Proportion. Taken into the Blood they may determine to the Surface & may perhaps serve to destroy cutaneous Vermin. It is probable that all the Waters that have fixed Air as they are of less Specific Gravity so they may seem



lighter on the Stomach & facilitate Digestion more than common Water. The Air that accompanies these Waters seems to be of the Mephitic kind & will sometimes intoxicate & bring on a Stupor with those that are not accustomed to them.

The Chalybeate Waters have all the Effects of our Steel Medicines & seem indeed to be preferable as the Water they carry with them may prevent the bad Effects of their too great Astringency —

With Regard to Earthy Impregnations those of the petrifying kind have been imagined to be deleterious in generating Calculi but tho' Facts alleged to prove it are not ascertained with Accuracy. I imagine the Acid of our Stomach would by converting them into a Saline State prevent this Inconveniency, nay they have been said to be of Service by absorbing that Acid.

Having finished the Consideration of the Fossil & particularly of the Metallic Astringents we are next to treat of —  
Vegetable Astringents.



These differ from the Fossil in several material Points.

1<sup>st</sup> They are not so quick in their Operation  
 2<sup>nd</sup> Their Action is more confined to the Prime  
 Vise whereas the Metallic Astringents by their  
 Stimulus extend their Effects moreover the  
 System.

3<sup>dly</sup> They are weaker and in any exigency as  
 in violent Hemorrhages are ~~not to be treated~~  
 trusted to. When we want to bring about a  
 gradual Change in the System the Vegetable  
 Astringents are to be preferred but when we  
 want a strong sudden & certain Astriction  
 they are greatly inferior to the Fossile. They  
 should always if possible be given in Substance  
 for we have no Menstruum to extract their  
 Virtues. We have indeed Waters & Spir: Vin:  
 but the Impregnations are in general very  
 weak. Sp: Vin: likewise very much limits  
 the Dose - for supposing an Ounce of Sp: Vin:  
 would extract  $\frac{3}{4}$  of any Astringent which is  
 allowing largely, there are few Cases in which  
 we



we can give  $\frac{3}{j}$  of Spirituous Tincture without producing worse Effects than those we intended to remedy. There is a Remark of D<sup>r</sup> Alston late P. M. M at Edinburgh that the Peruvian Bark remains a long Time on the Stomach in a solid & it is probable other Vegetable Astrin-  
gent do so too. D<sup>r</sup> Cullen says he has seen Bark thrown up unchanged 8 Days after its Exhibi-  
tion, but in this Case the Stomach must have been in a disordered State & we find Food thrown up unchanged after it has remained a day or two or even longer in the Stomach.

Vegetable Astringents taken in Substance remain longer on the Stomach than when taken in Solution - hence their Virtues will be more compleatly extracted & will prove more service-  
able. As Vegetable Astringents are longer in the System before they are dissolved & this is one Reason why their Operation is not so quick. When given in Solution they seldom produce such considerable Effects as when given in -



Substance. They pass off more quickly and are apt to prove Purgative. They are likewise in this State to undergo a Fermentation by which their Astringent Virtue may be destroyed. As the Fossil Astringents are not subject to this Process & even resist it they are not liable to be changed in the Primæ Viæ. Vegetable Astringents should be given in Substance in Form of Powders Pills or Boluses. As by the long continued Use of them we are apt to induce Costiveness we may to obviate this combine some gentle Laxative with them. Rhubarb is one of the best as it has a Purgative conjoined with its Astringent Quality. We should be careful not to employ such Purgatives as tend to produce Relaxation. Flowers of Sulphur, Aloes, Calomel where a few Grains will answer the Intention are the best we can employ.

We now come to treat  
Of Particular Astringents



The Operation of these you will understand from what has been said of their general Effects. I shall only take Notice of such as have been recommended for particular Purposes. — Dr Cullen has treated this Class of Medicines so amply that you will not be at a loss if I should even be guilty of some Omissions.

Pentaphyllum or Lingue Foil is a simple & agreeable Astringent but a very weak one. Dioscorides recommends a Decoction of it for the Tooth Ach & other Astringents have been employed for the same Purpose. As it is but weak no great Effects are to be expected from its agreeableness it may be combined with others & prove serviceable in relaxed Habits. It may be given in Infusion & used by the Patient as a constant Drink. Tournefort assures us that he cured a Fluor Albus with the expressed Juice of the Lingue Foil. This Disorder as we have said before is frequently owing to a general or Partial Relaxation



and the Cure is to be attempted only by gentle Astringents which restore Tone to the relaxed Parts.

Roses are sometimes employed in Medicine. They are a weak Astringent of an agreeable Odor & Taste. An Infusion of Red Roses sweetened with Vinegar will afford an excellent Drink in Putrid Fevers and Dysenteries much more agreeable than the nauseous drinks generally employed. This Infusion may also be employed to prevent the Return of Hemorrhages.

Tormentilla is a very pure Astringent & for its Efficacy deserves to be placed at the Head of Vegetable Astringents. In Italy where it grows plentifully it is used for the Tanning of Leather. It was employed for the Cure of Intermittents before the Peruvian Bark was discovered & its Virtues in this Case were known in the Time of Hippocrates. It was likewise employed in all those Cases



Cases where the Peruvian Bark is now used with superior Efficacy. The Indians on this Continent use in the same Intention a Plant of the same Nature with Tormentilla - the Geum. For the Cure of Intermittents the Tormentilla was generally combined with Bitters, for it was known that Astringents combined with Bitters were highly Serviceable in this Disorder, long before it was discovered that Nature had formed this Combination in the Peruvian Bark. It has been recommended from Time immemorial for the Cure of Diarrhoeas & Dysenteries. It will no doubt be as proper as any other, where Astringents are serviceable in these Cases. They are however not so frequently useful as is commonly imagined. We shall have a better Opportunity of inquiring into the Use of Astringents in those Cases hereafter & will therefore defer it till then.

A Decoction of Tormentilla has been recommended to prevent Abortion. This Nine



Times out of Ten is owing to Relaxation  
 & Irritation of the Uterus. A Person <sup>who</sup> has  
 suffered Abortion from this Cause should  
 immediately after Conception be put upon  
 a Course of some gentle Astringents. The  
 Metallic Astringents are not to be employed  
 for by their Stimulus they will increase  
 the Impetus of the Blood & of consequence  
 increase the Danger of Abortion. The Vegetable  
 Astringents are to be preferred. The best Me-  
 thod of exhibiting them in this Case is in  
 an Infusion in Cold Water ʒj of Tormentill  
 may be macerated for 24 Hours in a Quart  
 of Cold Water for this extracts the Virtues of  
 the Vegetable Astringents. This I know from  
 some Experiments made by myself & some  
 of my Contemporaries at Edinburgh. Five  
 or Six of us formed ourselves into a private  
 Society, solely for the purpose of inquiring  
 into the Virtues of different Medicines and



the best Manner of preparing them. We amongst others tried Astringents & found that their Virtues were best extracted by cold Infusion. We tried all the different Astringents we could lay our Hands upon or that were used in Medicine & found the Result always the same. Infusion in 24 Hours extracted their Virtues more powerfully than any other Menstruum. This I do not recollect to have seen taken Notice of by any Author. It is however a fact which I would advise you to pay a particular Attention to in Case you employ any Vegetable Astringent & cannot give it in Substance.

Rubia or Madder is a very weak Astringent & as such it might pass unnoticed. It deserves however to be mentioned on Account of another Matter it possesses. It has been found to colour the Bones of those Animals that feed upon it, red (the Callus of a broken Bone is not tinged). It appears that the Bones



of young Animals are sooner tinged than those of an Old one; that the Callus Ligaments Tendons Nerves & indeed every Part but the Bones were not colored by it. M<sup>r</sup> Leveret a famous Man Midwife of Paris recommends Maddor for the Rickets & assures us that he has employed with Success. In this Disease however Nature generally performs the Cure & we trust more to the Cold Bath to assist her than to any other Remedy. I can not imagine how a Substance which is found to render the Animals that feed upon it flurish & heavy should have any Effect in this Disease.

Maddor has been recommended for the Cure of the Jaundice but it possesses no Virtues by which it may effect a Cure in this Disease. It has probably been employed in this Disease with many other Substances merely from its Color. We now know that the Jaundice is generally owing to Concretions in



in the Biliary Ducts by which the Passage of  
 the Bile into the Duodenum is prevented a  
 Regurgitation is produced & an Absorption  
 of that Fluid into the System takes place.  
 The Disorder generally goes off suddenly  
 from the Concretion passing into the Intes-  
 tines of itself & being evacuated by Stool. The  
 Medicine which happens to be given at this Time  
 is generally thought to have performed the Cure  
 The Cure depends on Solution or Evacuation.  
 Hitherto we have discovered no Medicine that  
 will dissolve the Concretion - we must therefore  
 depend intirely upon Evacuation. This is to  
 be attempted by Emolients, Emetics & Laxa-  
 tives. By these we produce Relaxations in  
 the Parts & compress the Liver by which the  
 Expulsion of the Concretion into the Intestines  
 is promoted. Dr. Schultze<sup>P. M.</sup> at Halle recommends  
 a Decoction of Madder in the Disease called  
 Gutta Rosacea or a Red pimply Face  
 Bistorta is a simple & strongstringent



It has been recommended from the Beginning of Time in the Tooth Ach & for strengthening & fastening loose Teeth. Many other Astringents have been recommended for the same Purpose for which they will answer much better than the Dentifrices commonly made use of. As the soundness of the Teeth depends in a great Measure on the purity & soundness of the Gums there is no Doubt but any moderately Astringent Application as washing the Mouth with a Decoction of Bistorta or even chewing the Root by rendering the Gums firm and sound & by promoting the Circulation in the finer Vessels will contribute to fix the Teeth firmly in their Sockets will give them a white Color & if any thing will have this Effect will preserve them from Decay.

*Lappathum* or Dock Kind - of this there are various Species. They have all been recommended



recommended in the Survy & in cutaneous  
 Foulness & Eruptions which were thought  
 to be owing to a scorbutic Habit of body.  
 The Itch has been thought to be owing to  
 this & the Dock has been employed for the  
 cure of it. Thus we find it is an Ingredient  
 in the Unguent. Antipoor. of the Edinb:  
 Disp. We now know that the Itch is owing  
 entirely to a species of small Insects,  
 called by Linnaeus Acarus. They are the  
 same as those found in damaged flour  
 & other Damaged Vegetables. It is entire-  
 ly cuticular & is to be cured only by such  
 Applications as come in immediate con-  
 tact with the Vermin. Common Dock  
 bruised or infused in Milk or Cream for  
 24 hours & applied externally is a domes-  
 tic Medicine frequently employed for the  
 cure of this Disease & I have been assured  
 that it seldom or never fails of Success.  
 Whether Ringworms are owing to the same  
 cause as the Itch is doubtful. They



may be as effectually cured by the expressed Juice of the Dock as by any other means.

*Radix Britannica* one of the Dock Kinds has been much recommended in the *Survey*. *Nuntingius* who wrote a Treatise on the Virtues of this plant tells us that the army of the Emperor was in great Danger of being destroyed in *Holland* by the *Survey* & that the greatest part recovered by the use of this Remedy.

*Mr Golden* formerly Lt Governor of *New York* gives us an Instance of a Gentleman afflicted with ill conditioned Ulcers in his Throat for which he had taken the Advice of different Physicians to no Purpose. He was at last perfectly cured by an Indian. He drank plentifully of a decoction of the *Radix Britannica* & also used it as a Gargle. It is very serviceable in all ill conditioned Ulcers & in those Ulcers commonly



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called Cancroetic of the Legs & other parts of the body. These ulcers will often baffle the Efforts of the most skilful Physicians & after they have been dismissed as incurable it sometimes happens that some old Woman undertakes & even performs a Cure. The Remedy they generally employ is the common Dock which they apply externally as a fomentation to the part & at the same time make the Patient drink plentifully of a decoction of it. The Dock is possessed of considerable Astringency with its Astringency. It acts not only by its Astringent Qualities giving Tone to the Parts, but also by its Stimulus it excites the Action of the Vessels of the part. It likewise increases the Evacuation by Urine but principally by the Skin by which the too great Determination of the fluids to the Ulcer is taken off. The use of it should be persisted in for a length of Time.



Felices or Fern Kind were formerly much em-  
 ployed in Medicine but are now seldom  
 used. The Felix Mas or Male Fern was  
 recommended by Dioscorides for the Cure  
 of Worms in the Dose of ℥ss. I have ac-  
 cordingly in my different Courses of Lec-  
 tures amongst the Anthelmintica enu-  
 merated the Fern tho' from its being  
 never employed I concluded that it  
 possessed no considerable Virtues. It has  
 of late been again introduced into prac-  
 tice. Madam Neuffer had acquired  
 great Reputation for a supposed Specif-  
 ic she possessed for the Cure of the  
 Tape-worm. She at last obtained a  
 premium from the King of France for  
 the Discovery of her Secret which was  
 found to be the Root of the Male fern  
 in Powder. Thus has the Medicine  
 been again introduced into Practice  
 under favorable Circumstances & it  
 is



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is probable that Mad: Neuffer or the per-  
son who had discovered the Secret to her  
had learned it from some old neglected  
Herbal. —

Capillus Veneris has been recommended  
on account of its pectoral Virtues & has  
been said to cure Consumptions; but it  
is now with propriety totally neglected.

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